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January 14, 2013



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VIA HAND DELIVERY

Ms Cynthia Brown
Chief, Section of Administration
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Office of Proceedings

JAN 14 2013

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Public Record

Re: STB Ex Parte No. 717, *Petition of the Association of American Railroads to Institute A Rulemaking Proceeding to Reintroduce Indirect Competition As A Factor Considered in Market Dominance Determinations for Coal Transported to Utility Generation Facilities*

Dear Ms. Brown:

Enclosed for filing in the above-referenced proceeding, please find an executed original and fifteen (15) copies of the Reply in Opposition By Western Coal Traffic League and National Mining Association.

Please date stamp the extra copy of this cover letter and the enclosed duplicate filing and return it to our messenger. Thank you for your attention to this matter.

Respectfully submitted,

John H. LeScur
An Attorney for
Western Coal Traffic League and
National Mining Association

Enclosures

BEFORE THE
SURFACE TRANSPORTATION BOARD



PETITION OF THE ASSOCIATION OF)
AMERICAN RAILROADS TO INSTITUTE)
A RULEMAKING PROCEEDING TO)
REINTRODUCE INDIRECT COMPETITION)
AS A FACTOR CONSIDERED IN MARKET)
DOMINANCE DETERMINATIONS FOR)
COAL TRANSPORTED TO UTILITY)
GENERATION FACILITIES)

233673

STB Ex Parte No. 717

REPLY IN OPPOSITION BY WESTERN COAL TRAFFIC LEAGUE AND
NATIONAL MINING ASSOCIATION

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Dated: January 14, 2013

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**BEFORE THE
SURFACE TRANSPORTATION BOARD**

PETITION OF THE ASSOCIATION OF)	
AMERICAN RAILROADS TO INSTITUTE)	
A RULEMAKING PROCEEDING TO)	
REINTRODUCE INDIRECT COMPETITION)	STB Ex Parte No. 717
AS A FACTOR CONSIDERED IN MARKET)	
DOMINANCE DETERMINATIONS FOR)	
COAL TRANSPORTED TO UTILITY)	
GENERATION FACILITIES)	

**REPLY IN OPPOSITION BY WESTERN COAL TRAFFIC LEAGUE AND
NATIONAL MINING ASSOCIATION**

The Western Coal Traffic League ("WCTL") and the National Mining Association ("NMA") (collectively "WCTL/NMA") respectfully request that the Surface Transportation Board ("STB" or "Board") deny the Petition of the Association of American Railroads ("AAR") asking the Board to institute a rulemaking proceeding to adopt a rule requiring the Board to consider evidence of product and geographic competition in making market dominance determinations in cases involving "coal transported to utility generating facilities."¹

¹ AAR Petition at 1 (capitalization and bolding omitted). AAR filed its Petition on November 19, 2012. In its decision served on December 3, 2012, the Board granted WCTL's request to extend the due date for filing replies to this Petition to January 14, 2013.

PREFACE AND SUMMARY

The Board will grant a request to institute a rulemaking proceeding only if the requesting party demonstrates an “adequate justification”² AAR presents no such justification in its Petition.

The Board stopped considering allegations of the existence of product and geographic competition³ in making market dominance determinations⁴ because the Board found that its consideration of these allegations had become an unnecessary administrative nightmare for both shippers and the Board:

- **Case Costs:** The Board found that its consideration of product and geographic competition was adding huge sums to shippers’ litigation costs to resolve threshold competition issues;
- **Case Delays:** The Board found that its consideration of product and geographic competition was causing huge case delays;

² 49 C.F.R. § 1110.2(f).

³ “Product competition” as used herein refers to the ability of a complainant shipper to avoid use of the defendant carrier by shipping or receiving a different product. “Geographic competition” as used herein refers to the ability of a complainant shipper to avoid use of the defendant carrier by obtaining the same product from a different source. Product and geographic competition are sometimes hereinafter referred to as “indirect competition.”

⁴ The STB can only regulate the maximum reasonableness of regulated rail rates in cases where the defendant “rail carrier has market dominance over the transportation to which a particular rate applies.” 49 U.S.C. § 10701(d)(1). “Market dominance” is defined as “an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies.” *Id.* at § 10707(a). The Board cannot make a finding of market dominance if the defendant carrier demonstrates that the challenged rate “results in a revenue-variable cost percentage . . . that is less than 180 percent.” *Id.* at § 10707(d)(1)(A).

- **Taxing Board Resources:** The Board found that its consideration of product and geographic competition was unduly taxing the Board's staff by requiring them to become experts in areas far removed from transportation competition, as well as requiring them – particularly in coal rate cases – to delve into complex matters concerning how electric power was generated and sold,

- **Chilling Effects:** The Board found that its consideration of product and geographic competition was having a chilling effect on shippers with meritorious claims instituting maximum rate cases; and

- **Board Experience:** The Board found that its consideration of product and geographic competition was not necessary because shippers that enjoyed effective product and geographic competition seldom brought rate cases. This was particularly true for utility coal shippers: the Board never found that effective product and geographic competition existed in any coal rate case instituted by an electric utility, and the Board's predecessor, the Interstate Commerce Commission ("ICC"), made such a finding in only one such case – a finding that was reversed on appeal.

AAR claims that a new rulemaking proceeding is in order because its retained expert, Dr. Reishus, has "found a simple and efficient way" that "would allow the Board to identify coal-fired generation for which it is safe to presume that rail rates are constrained to competitive levels by indirect competition exerted in the wholesale power markets."⁵

At WCTL/NMA's request, Ms. Julie M. Carey and Mr. James M. Speyer ("Carey/Speyer"), experts on matters relating to competition within wholesale electricity markets, have reviewed Dr. Reishus' verified statement ("Reishus V.S."). They demonstrate that Dr. Reishus' claims that there are now "simple and efficient ways" to identify the existence of grid competition are wrong. The existence of grid competition

⁵ AAR Petition at 26. WCTL/NMA sometimes hereinafter refer to competition exerted in wholesale power markets as "grid competition."

remains just as complicated and complex today as it was when the STB decided to stopped considering it over a decade ago.

AAR also claims that a new rulemaking proceeding is necessary because coal shippers who enjoy effective grid competition are filing – or are likely to file – rate cases. This argument is nonsense. It costs coal shippers approximately \$5 million or more to pursue a maximum rate case today under the Board's stand-alone cost ("SAC") standards. No shipper that enjoys any form of meaningful competition is going to have any incentive to file a maximum rate case given the already oppressively high costs associated with seeking this relief. What the AAR really wants to do is to re-inject product and geographic competition into rate cases in order to make these already extraordinarily complex and costly cases even more complex and costly.

In addition to the Petition's utter lack of substantive merit, it would be very bad public policy for the Board to grant the AAR's request. Neither coal shippers nor the Board should be forced to expend their limited resources on a totally unnecessary and meritless rulemaking proceeding, and the specter of re-introduction of alleged grid competition in coal rate cases would have the same chilling effects on coal shippers that led the Board to ban consideration of these esoteric forms of alleged competition in the first place.

WCTL/NMA respectfully request that the Board deny AAR's Petition for the reasons set forth herein.

ARGUMENT

I.

THE BOARD STOPPED CONSIDERING ALLEGATIONS OF PRODUCT AND GEOGRAPHIC COMPETITION IN MAKING MARKET DOMINANCE DETERMINATIONS BECAUSE CONSIDERATION OF THESE ALLEGATIONS HAD BECOME AN UNNECESSARY ADMINISTRATIVE NIGHTMARE FOR BOTH SHIPPERS AND THE BOARD

The Board stopped considering allegations of the existence of product and geographic competition in making market dominance findings because the Board held in a series of decisions issued in its *Product and Geographic Competition Case*⁶ that the agency's consideration of these allegations had become an unnecessary administrative nightmare for both shippers and the Board, and one that deflected Congress' intent that the market dominance analysis be a "threshold test"⁷ made under agency rules "designed to provide for a practical determination without administrative delay"⁸ as opposed to a "[l]engthy antitrust-type analysis."⁹

Specifically, the Board found that its consideration of product and geographic competition was (1) forcing shippers to expend huge amounts of time, effort, and expense in case proceedings; (2) causing massive case delays; (3) unduly taxing the

⁶ *Mkt. Dominance Determinations – Prod & Geographic Competition* ("PG I"), 3 S.T.B. 937 (1998), *pets. for reconsideration denied*, 4 S.T.B. 269 (1999) ("PG II"), *reaffirmed on remand*, 5 S.T.B. 492 (2001) ("PG III"), *aff'd sub nom Ass'n. of Am. R.R.s v STB*, 306 F.3d 1108 (D.C. Cir. 2002) (collectively, "*Product and Geographic Competition Case*").

⁷ Former 49 U.S.C. § 1(5)(d) (1976).

⁸ S. Rep. No. 94-499 (1975) at 46, *reprinted in* 1976 U.S.C.A.N. 14.

⁹ *Id.* at 47.

resources of the Board; (4) producing chilling effects that discouraged shippers from pursuing meritorious maximum rate complaints, and (5) unnecessary because shippers that enjoyed effective product and geographic competition did not bring rate cases.

A. Shippers Were Incurring Massive Litigation Costs

The Board found that its consideration of product and geographic competition was resulting in huge increases in shippers' litigation costs at all stages of the litigation process.¹⁰ Railroads routinely started each case with hundreds of discovery requests directed at product and geographic competition issues.¹¹ Responding and objecting to these requests was very expensive.¹²

When shippers objected, carriers filed motions to compel and engaged in other procedural maneuvers (including appeals of initial discovery orders), forcing shippers to respond, which further drove up case costs.¹³ Once discovery was completed – which could take years – shippers had to expend substantial additional sums on experts to respond to railroad evidentiary submissions on product and geographic competition

¹⁰ See *PG I*, 3 S.T.B. at 946 n.50 (“litigation involving product and geographic competition issues is one the more costly aspects of rate litigation”).

¹¹ *Id.* at 946 (“in many rate cases the number of discovery questions that have been posed in order to develop evidence on product and geographic competition have numbered in the hundreds”).

¹² *PG II*, 4 S.T.B. at 274 n.25 (“The evidence details how taxing it was on shipper resources to respond to the railroad’s product and geographic discovery requests”); *id.* at 275 (“From the shippers’ perspective, substantial time and resources have been devoted to responding to [product and geographic competition discovery] requests, whether by producing the requested materials or by objecting to the requests and seeking to impose reasonable limits on the scope of discovery”).

¹³ *Id.*

issues. These railroad submissions typically were hundreds, and sometimes thousands, of pages in narrative length, accompanied by reams of complex electronic workpapers.¹⁴

The poster child for the added litigation expenses caused by the Board's consideration of product and geographic competition were coal rate cases. In these cases, railroad defendants employed scorched-earth discovery practices, and evidentiary filings, directed to their contentions that shippers served by a single railroad could leverage the defendant carrier by threatening to substitute power purchased on the electric grid for power generated at their sole-served utility plants. The defendant carriers' arguments typically consisted of an asserted daisy chain where they claimed: generating less power = purchasing less coal = less coal to transport = effective competitive constraints on their rail rates

As discussed below, utility coal shippers demonstrated in each case decided by the STB, and the ICC before it (except one case that was reversed on appeal), that this alleged grid competition – competition the Board referred to as a “hybrid” form of product and geographic competition¹⁵ – was either non-existent, or, if existent, not effective. However, the costs of doing so were enormous, and were additive to the huge

¹⁴ *Id.* at 285 (Chairman Morgan commenting) (noting that in one case, “the defendant railroad has . . . submitted over 1800 pages of materials on product and geographic competition in its opening presentation alone”); *id.* at 275 (“the record is replete with testimony from shippers that the burden of preparing evidentiary presentations in response to allegations of effective product and geographic competition is quite substantial”).

¹⁵ *Id.* at 273 n 23.

costs shippers were already incurring to prove their entitlement to rate relief under the Board's SAC test.

B. Cases Were Being Excessively Delayed

The Board found that its consideration of product and geographic competition was creating significant delays at all stages of maximum rate cases, including discovery, preparation of evidence, and the Board's consideration of that evidence ¹⁶

These delays were particularly acute in coal rate cases, including *West Texas*¹⁷ and *Arizona*:¹⁸

Despite our earnest efforts, rail rate cases have been difficult to expedite. In the *West Texas* case, for example, it took nearly 2 years just to build the evidentiary record, and in the *Arizona* case, it took well over 2 years. The product and geographic competition issues contributed significantly to the length and complexity of both of those cases.

PG I, 3 S.T.B. at 943 (footnotes omitted)

¹⁶ See, e.g., *PG I*, 3 S.T.B. at 948 ("the time and resources required for the parties to develop, and for us to analyze, [product and geographic competition evidence] . . . can be inordinate"). *id.* at 938 ("consideration of product and geographic competition significantly impedes the efficient processing of [rail rate] cases"); *PG II*, 4 S.T.B. at 274 n.26 (referencing case where "it took the ICC more than three years to issue a written decision resolving the market dominance issue").

¹⁷ *W. Tex. Utils. Co. v. Burlington N. R.R.*, 1 S.T.B. 638 (1996), *aff'd sub nom. Burlington N. R.R. v. STB*, 114 F.3d 206 (D.C. Cir. 1997) ("*West Texas*").

¹⁸ *Ariz. Pub. Serv. Co. v. Atchison, Topeka & Santa Fe Ry.*, 2 S.T.B. 367 (1997), *modified*, 3 S.T.B. 70 (1998) ("*Arizona*").

C. The Board's Resources Were Being Unduly Taxed

The Board found that its own resources were being unduly taxed as the Board and its staff – who are experts in rail transportation – had to decide complex product and geographic competition issues far removed from their area of expertise.¹⁹

The Board found it particularly difficult to address complex grid competition issues raised by rail defendants in coal rate cases. For example, in *PG I*, the Board held that dealing with “complex non-transportation issues, such as the functioning of the power transmission grid,” was “significantly complicating” the timely disposition of coal rate cases:

Consideration of product and geographic competition also imposes substantial burdens on us that extend the processing of rate cases. For example, in several recent cases challenging rates charged for transporting coal to a utility, the railroads asserted that a utility's ability to substitute power from different plants, either from within or outside its immediate system, effectively disciplined the railroads' rates because a utility could in theory idle or reduce power production at the plant at issue. . . . These arguments required us to examine in depth the economics associated with producing and distributing electric power. It has also been suggested that, because utilities are interconnected via the power grid, the ability to burn fuel and produce power at various plants gives rise to effective geographic competition. Again, these arguments have required us to address complex non-transportation issues, such as the functioning of the

¹⁹ See, e.g., *PG II*, 4 S.T.B. at 276 & n.34 (“consideration of product and geographic competition also places a heavy burden on this agency” because “[t]he inclusion of such matters, as to which the agency has no particular expertise, necessarily increases the difficulty of the analysis that must be performed and places significant demands on agency resources” and “requires us to delve deeply into industrial operations that are far removed from the transportation industries that we oversee”).

power transmission grid, thus significantly complicating and prolonging an analysis of the record.²⁰

The Board repeated these same concerns in both *PG II* and *PG III*:

As we explained in [*PG I.*] . . . the railroads [have] argued that coal-burning electric generating facilities could avoid using the rail carrier serving the facility by generating power at other plants and by purchasing power from the electric grid. This required us to delve extensively into the operations of the electric generation industry before reaching a conclusion on market dominance.²¹

* * * *

[T]he evidence that had been introduced relating to alleged product and geographic competition had placed a substantial burden on us to address matters outside our areas of expertise, requiring us to grapple with such complex non-transportation issues as: the feasibility of switching the generation of electricity from one plant to another [and] the utility industry's ability to "wheel" power over the electric power grid.²²

D. Chilling Effects Ensued for Some

The Board found that its consideration of product and geographic competition issues was creating a "chilling effect"²³ on captive shippers: captive shippers with meritorious claims were not bringing rate cases because of the enormous costs, and case delays, caused by the Board's consideration of allegations concerning these forms of competition:

²⁰ *PG I*, 3 S.T.B. at 947 (footnotes omitted)

²¹ *PG II*, 4 S.T.B. at 274 n.27.

²² *PG III*, 5 S.T.B. at 493.

²³ *PG I*, 3 S.T.B. at 938.

Ultimately, the most troubling aspect of including an examination of product and geographic competition involves the widespread claims that captive shippers with legitimate concerns about the level of their rates are deterred from availing themselves of their statutory right to challenge those rates. While those claims cannot be documented, we do not doubt them, given the complexity and cost that consideration of these factors introduces into a proceeding. A railroad need not be able to prevail on its product and geographic competition arguments for the costs of litigating those issues – in terms of time, money, and other resources – to act as a barrier to rate complaints.²⁴

E. For Others, It Was A Wild Goose Chase

The Board found that its consideration of product and geographic competition was akin to a wild goose chase because shippers that enjoyed effective product and geographic competition seldom brought rate cases before the Board, nor did they have any incentive to do so.

As the Board explained, “if there are product and geographic competitive alternatives that are obviously effective, a shipper would be unlikely to pursue a regulatory rate challenge.”²⁵ Moreover, if a shipper with effective competition did attempt to pursue a rate case, “a rate level that is constrained by effective competitive alternatives would doubtless be found reasonable, as AAR acknowledges.”²⁶

The Board’s conclusions rang particularly true for coal shippers. In the twenty years that product and geographic competition was considered (1979 to 1998), the

²⁴ *PG II*, 4 S.T.B. at 277.

²⁵ *PG I*, 3 S.T.B. at 948.

²⁶ *Id.* See also *PG II*, 4 S.T.B. at 278 (“we are not persuaded that our revised policy will result in railroads having to defend rates where competition is effective and the resulting rate is reasonable”).

Board never found that a utility coal shipper's rates were effectively constrained by product and geographic competition, and the ICC did so only once, in a decision that was reversed on appeal ²⁷

F. The Board Properly Concluded That This Administrative Nightmare Had to End

The Board concluded that the only harm that a carrier might suffer from the Board's consideration of product and geographic competition was the possibility of a frivolous claim brought by a shipper that enjoyed indirect competition – a harm the Board did not find substantial – because of the unlikelihood of such an occurrence, and the fact that the carrier would prevail on the merits.²⁸

The Board also concluded that shippers would continue to suffer substantial harm if the Board did continue to consider product and geographic competition in the form of additional case costs, case delays, and chilling effects. "On balance," the Board found, "there is no question that the scale tips in favor of limiting the market dominance inquiry Any harm to railroads is minimal and must give way in order to remove a substantial obstacle to the shippers' ability to exercise their statutory rights."²⁹

²⁷ *Cent Power & Light Co. v United States*, 634 F 2d 137 (5th Cir. 1980).

²⁸ *PG I*, 3 S.T.B. at 949.

²⁹ *Id. Accord PG II*, 4 S.T.B. at 278 ("We do not believe that the relatively modest burden placed on the carriers by our revised policy – the burden of litigating a potentially frivolous case – outweighs the substantial burdens on the administrative process of continued consideration of product and geographic competition.").

II.

THE AAR'S PETITION PROVIDES NO ADEQUATE JUSTIFICATION FOR THE BOARD TO INSTITUTE A RULEMAKING PROCEEDING TO REVISIT THE BOARD'S LONGSTANDING AND CORRECT PRIOR RULINGS THAT PRODUCT AND GEOGRAPHIC COMPETITION ALLEGATIONS SHOULD NOT BE CONSIDERED IN COAL RATE CASES

The Board will grant a request to institute a rulemaking proceeding only if the requesting party demonstrates an "adequate justification."³⁰ AAR asserts that such a justification exists because (1) its expert, Dr. Reishus, has now invented a "simple and efficient way"³¹ to identify whether rail rates on utility coal traffic are effectively constrained in "wholesale power markets,"³² and (2) consideration of product and geographic competition will "likely deter some clearly meritless challenges."³³ Neither assertion is correct, nor should the Board subject itself, and coal shippers, to a costly rulemaking proceeding when there clearly is no adequate justification for doing so.

A. AAR Has Not Identified A "Simple and Efficient Way" to Determine Whether Effective Product and Geographic Competition Exists

The AAR repackages the same type of daisy chain forms of "grid competition" that rail carrier defendants unsuccessfully trotted out in cases decided prior to the Board's decision to stop considering allegations of product and geographic competition.

³⁰ 49 C.F.R. § 1110.2(c), (f)

³¹ AAR Petition at 7.

³² *Id.* at 1.

³³ *Id.* at 10.

The AAR's current iteration of the product and geographic competition daisy chain is roughly as follows: railroad coal transportation rates are a significant component in delivered coal prices (coal price + rail price); delivered coal prices are a significant component in utility plant dispatch prices (delivered fuel prices + other dispatch price inputs); coal-fired utility plants compete for electricity sales with other plants in wholesale power markets (*i.e.* the grid); excessive rail rates will reduce or prevent the dispatch of a coal-fired plant; if the plant does not dispatch (in whole or in part), the plant generates less electricity; the plant burns less coal; the railroad transports less coal to the plant; the railroad earns less revenue; and, the railroad – anticipating all of this – prices its service to maximize power sales and coal deliveries. The resulting rail price, the AAR contends, is effectively constrained.

According to Dr. Reishus, all the Board needs to do to determine whether this convoluted daisy chain is resulting in an effective constraint on rail rates on individual utility coal movements is to conduct “simple analyses”³⁴ of publicly available “generation output” data³⁵ or publicly available “wholesale power supply and capacity factor curves.”³⁶ He provides two examples of his “simple analyses,” but then goes on to say that “[t]he examples do not represent specific proposals for the implementation of

³⁴ Reishus V.S. at 4.

³⁵ *Id.* at 71.

³⁶ *Id.* at 75 (capitalization modified and bolding omitted).

definitive screens for indirect competition exerted by the wholesale electric power markets.”³⁷

Since it is clear that Dr. Reishus is not presenting any “specific proposals,” his testimony really boils down to the assertion that some form of “simple analyses” can be developed that can readily identify when wholesale electric prices are providing an indirect, but effective, constraint on railroad prices to particular plants. As Ms. Carey and Mr. Speyer demonstrate in their verified statement, there are no “simple analyses” that can be used to reach accurate conclusions whether a rail carrier’s prices are effectively constrained by wholesale electric prices.

1. No Determinations Concerning the Existence of Effective Competition Can Be Made Simply By Eyeballing Plant Generation Data

Dr. Reishus first suggests that simply looking at the changes in output by a coal-fired plant from one year to the next “may provide evidence that demonstrates the competitive constraint on rail transportation rates exerted by competition between a particular coal-fired plant and other generation sources”³⁸

However, simply looking at annual changes in generation output data is “far too simplistic” to draw any meaningful inferences.³⁹ For example, changes in plant output can be attributable to many factors besides competition from other generating sources, including, weather factors, customer demand factors, plant outages and

³⁷ *Id.* at 71.

³⁸ *Id.* at 72.

³⁹ Verified Statement of Julie M. Carey and James M. Speyer (“Carey/Speyer V.S.”) at 11.

transmission constraints, all of which can vary greatly on an hourly, daily, or monthly basis.⁴⁰ Moreover, review of annual production changes says nothing, in and of itself, as to whether the changes themselves have any causal links to rail prices, or whether rail prices are in any effectively constrained due to changes in plant output.⁴¹

2. No Determinations Can Be Made Concerning the Existence of Effective Competition Simply By Eyeballing Wholesale Power Supply and Capacity Factor Curves

Dr. Reishus also suggests that meaningful determinations can be made concerning the existence of effective competition by eyeballing regional wholesale power supply curves and plant capacity curves. *See, e.g.,* Reishus V.S. at 76 (“a modest change in the delivered cost of coal for [a hypothetical plant] would substantially shift its location on the supply curve, and could easily result in substantial lost sales to natural gas-fired or alternative coal-fired generation”).

As Carey/Speyer explain, Dr. Reishus’ proposal to eyeball power supply and capacity curves is also “far too simplistic” to draw any meaningful conclusions concerning the existence of effective constraints on rail pricing:

The reliance on capacity factor [and wholesale power] curves is flawed because it ignores the essential underlying analysis required to define the appropriate geographic market in order to ensure that one is comparing power plants that could potentially compete with one another. In addition, the capacity factor [and wholesale power] curves analysis is flawed for all of the reasons that simply looking at the

⁴⁰ *Id.* at 11-13.

⁴¹ *Id.* at 12.

changes in production levels from coal fired power plants (Example 1) is flawed.⁴²

3. The Analysis Needed to Determine Whether Grid Competition Is Effectively Restraining Rail Rates Remains Extraordinarily Complex and Expensive

As Carey/Speyer explain, a complicated and granular multi-step process is required to determine if grid competition is providing an effective competitive constraint on rail pricing.⁴³

a. Defining the Relevant Geographic Market

The first step in this complex process is to define the relevant geographic market:

The first step in determining if electricity generation competition is an effective competitive constraint to the railroad transportation rate is to define the relevant geographic market for electricity production. Market definitions hinge on properly identifying and properly evaluating potential substitutes for a given product. Economic substitutes can also differ by season, time of day, or load/operating conditions. The FERC defines the relevant market for the purposes of merger approval by "... identifying potential suppliers based on market prices, input costs, and transmission availability, and calculates each supplier's economic capacity for each season/load condition." Defining the appropriate geographic market for electric generation competition is critical to determining if railroad transportation rates are effectively constrained by such electricity generation competition. If one defines the market too broadly, the analysis could falsely identify competition between natural gas and coal fired power plants that does not exist in the geographic market for which these plants operate. Similarly, if one defines the market too narrowly, the analysis

⁴² *Id* at 13.

⁴³ *Id* at 6-10.

could fail to include actual competitors in supplying electricity from coal and natural gas power plants.⁴⁴

Recent cases at FERC illustrate how complicated it is to determine relevant geographic markets for purposes of assessing competition between utilities. For example, Carey/Speyer cite a recent utility merger case where testimony was presented showing “that thousands of geographic markets existed coinciding with any transmission constraint that was binding for 100 hours a year” and “overall analyses [of geographic competition issues] . . . required hundreds of pages” of expert testimony, supported by extensive sets of electronic workpapers.⁴⁵

b. Dispatch Modeling in the Relevant Market

The second step in this complex process is “to complete very detailed and time consuming empirical analysis of hourly power market activities for the relevant geographic market” using dispatch models such as PROMOD IV in order to develop sensitivities correlating changes in delivered rail prices with changes in plant output and coal utilization:

The next step required to understand to what extent electricity generation competition between natural gas and coal fired power plants acts as a competitive constraint to the railroad transportation rate is to complete a very detailed and time consuming empirical analysis of hourly power market activities for the relevant geographic market using an hourly electricity production simulations (or “dispatch”) model such as PROMOD IV. Specifically, PROMOD is a detailed hourly chronological market model that simulates the dispatch and operation of the wholesale electricity market. PROMOD is a

⁴⁴ *Id.* at 6-7 (footnote omitted).

⁴⁵ *Id.* at 6.

least-cost optimization model that simulates the hourly operation of the energy market, while observing generator operating limitations and transmission constraints. Such models are used to forecast hourly electricity output and expected electricity prices and costs under a range of demand and supply conditions, and the model outputs are used for planning purposes as well as forecasting financial results.

In the context of determining economic substitutes, or competitive constraints, the economic dispatch simulation is needed to analyze the impact of various rail transportation rate assumptions on the coal fired power plant operating performance, namely the generation of the plant (and, specifically, each generating unit) which is then used to calculate the coal consumption at the plant and each generating unit. Multiple simulations would need to be completed assuming different rail transportation rates and, with the electricity production levels associated with the varying rail transportation rates, one can determine the impact on the quantity of tonnage consumed by the coal fired power plant, which can assist in determining the quantity impact of varying rail transportation rates on the railroad's profitability.⁴⁶

This modeling exercise is not only very time consuming, it is also very expensive. In addition, in order for railroad defendants to engage in this exercise, they would need substantial discovery against rail shippers.⁴⁷ Indeed, the need for modeling of this type, along with the railroad discovery that accompanied it, was one of the principal reasons cited by the Board for its decision to stop considering grid competition in making market dominance determinations.⁴⁸

⁴⁶ *Id.* at 7-8 (footnotes omitted).

⁴⁷ *Id.* at 9.

⁴⁸ See *PG I*, 3 S.T.B. at 947, *PG II*, 4 S.T.B. at 274 n.27; *PG III*, 5 S.T.B. at 493.

c. Performing Other Required Analyses

After running the dispatch model, several other steps would be necessary, including addressing economic factors that may not be captured by the dispatch models such as the terms of coal supply contracts,⁴⁹ railroad profit maximizing strategies not captured by the models (e.g., maximizing revenues by charging higher rates on lower volumes),⁵⁰ and evaluating whether the level of any grid-based cap on rail pricing is providing an *effective* competitive constraint on rail pricing as directed by Congress.⁵¹

It is important to emphasize that the mere existence of some theoretical grid-based cap on railroad pricing does not mean that the cap provides an *effective*

⁴⁹ See *West Texas*, 1 S.T.B. at 653 (complainant shipper “would incur substantial penalties under its coal supply contract – roughly \$7.30 per ton – if the minimum coal tonnages were not taken”) (footnote omitted); *Arizona*, 2 S.T.B. at 376 (“Arizona [Public Service] could not reduce its coal production at Cholla below 2.4 million tons per year without breaking its long-term requirements contract with the coal mine and incurring substantial penalties under the liquidated damages provisions of that contract”) (footnote omitted).

⁵⁰ See, e.g., *West Texas*, 1 S.T.B. at 654 (“absent regulation, BN could maximize its profits on WTU’s traffic simply by charging very high rates on the ‘base’ volumes that are relatively price insensitive, while offering lower rates only on such incremental volumes as might otherwise be displaced”); *Amstar Corp. v. Atchison Topeka & Santa Fe Ry.*, ICC Docket No. 37478, 1987 WL 99931 at *6 n.11 (ICC decided Nov. 23, 1987) (“All rates are constrained by market forces. Even monopolists find that, if they raise prices too high, customers decrease their purchases to such an extent that profits begin to fall.”).

⁵¹ See 49 U.S.C. § 10707(a) (defining market dominance as “an absence of *effective* competition from other rail carriers or modes of transportation for the transportation to which a rate applies”) (emphasis added)

constraint on rail pricing.⁵² As aptly summarized by one court in a case involving oil transportation:

At the core of the “effective competition” standard is the idea that there are competitive, market pressures on the railroads deterring them from charging monopoly prices for transporting goods. *Of course, any such effective competition will always be relative to a particular price that the railroads charge.* At some point the availability of an alternative such as the horse and buggy or even people carrying oil in buckets theoretically prevents railroads from raising their rates beyond an outer bound. But the mere existence of some alternative does not in itself constrain the railroads from charging rates far in excess of the just and reasonable rates that Congress thought the existence of competitive pressures would ensure.⁵³

The time and cost associated with performing these additional analyses is also very significant, and would require additional discovery by rail carriers (*e.g.*, discovery concerning coal supply contracts) and shippers (*e.g.* discovery concerning railroad pricing practices).

d. Resulting Costs and Delays

Carey/Speyer conservatively estimate that it would take experts with a detailed understanding of power markets “many hundreds of hours” to perform the

⁵² See, e.g., *West Texas*, 1 S.T.B. at 646 (“we look not just at whether there is an alternative, but at whether it constitutes an effective competitive constraint so as to prevent an exercise of undue market power”) (citation omitted); *M&G Polymers USA, LLC v. CSX Transp., Inc.*, STB Docket No. NOR 42123, slip op. at 11 (STB served Sept. 27, 2012) (“*M&G Polymers*”) (“in rate cases the Board looks to see if there are any alternatives sufficiently competitive . . . to bring market discipline to the carrier’s pricing – i.e., whether there is effective competition adequate to restrain rates at or below a maximum reasonable level”).

⁵³ *Ariz. Pub. Serv. Co. v. United States*, 742 F.2d 644, 650-51 (D.C. Cir. 1984) (emphasis in original).

analyses necessary to reach any sort of reasonable conclusions concerning the existence of any form of effective grid competition at any utility coal-fired plant.⁵⁴

These expert costs would only be the tip of the iceberg in any rate case. Working backwards in time, railroads would once again start submitting hundreds of discovery questions directed to alleged grid competition, discovery disputes would arise and need to be resolved by the Board, each side would need to prepare extensive amounts of evidence on grid competition issues, and then the Board would need to try to sift through and fully analyze and determine the merits of all of this.

The total cost to the parties (in terms of counsel and expert fees) could easily add \$1 million or more to each side's already extensive litigation costs in SAC cases. The Board would also once again have to devote substantial staff time and resources to complex electric generation issues outside its area of expertise. Indeed, all of the many reasons why consideration of grid competition became an administrative nightmare in the first place, including excessive costs, excessive case delays, and chilling effects on shippers, would be injected back into the maximum rate case process.

4. The Length and Scope of AAR's Own Petition Illustrates That Consideration of Indirect Competition Is Not Simple

AAR's 163 page petition, along with Norfolk Southern Railway Company's even longer 216 page supporting filing, are "Exhibits A and B" for why the Board stopped consideration of alleged grid competition. These filings are chock full of graphs, charts, and discussions that – naturally given who is presenting them – purport to

⁵⁴ Carey/Speyer V.S. at 2.

show that grid competition is an effective competitive constraint on rail rates. The filings themselves harken back to the lengthy, complex, and detailed statements railroad defendants would routinely introduce in rate cases to demonstrate the alleged existence of effective grid competition.

The bottom line is clear: there are no “simple” ways to accurately determine whether a railroad’s rates are constrained by product and geographic competition. Therefore, a rulemaking proceeding to develop such “simple” ways will be an exercise in futility from the outset.

B. AAR Submits No Evidence to Support Its Bogus Assertions That Coal Shippers Are Filing, Or Will File, “Meritless Challenges” Under the Board’s Current Market Dominance Rules

AAR also maintains that a rulemaking proceeding is necessary because, if the Board initiates such a proceeding, and adopts new rules permitting the Board to consider allegations of product and geographic competition in utility coal rate cases, the result “likely would deter some clearly meritless challenges.”⁵⁵

What the AAR is clearly implying here is that coal shippers are incented to bring rate cases that lack merit under the Board’s current market dominance rules. The AAR points to no such cases, and none exist. Filing a rate case is an option of last resort for coal shippers, and one that is not made lightly. Coal shippers typically incur litigation costs in SAC cases of at least \$5 million. Some cases have cost much more. Nor have

⁵⁵ AAR Petition at 10.

filed cases lacked merit. The last two coal rate cases decided by the Board were *WFA*⁵⁶ and *AEPCO*.⁵⁷ In each case, the Board found that challenged rates exceeded a reasonable maximum, and awarded reparations.

Moreover, the Board found in the *Product and Geographic Competition Case* that the Board's continued consideration of product and geographic competition evidence was precluding many shippers from pursuing meritorious claims for rate relief. The Board's decisions in *WFA* and *AEPCO* demonstrate that coal shippers are presenting meritorious claims under the Board's current market dominance standards.

The AAR also argues that "[b]ecause the SAC test can sometimes produce counterintuitive results, a large shipper might reasonably bring and hope to prevail in a rate case even when indirect competition already is effectively constraining its rates to levels that barely exceed the jurisdictional floor."⁵⁸

There is nothing "counterintuitive" about SAC results that produce maximum rates below the 180% R/VC ratio jurisdictional floor, as that is a frequent result in SAC cases,⁵⁹ nor is indirect competition in any way "effective" when it permits rates to be set at levels that exceed 180% of the defendant carrier's variable costs. As the

⁵⁶ *W. Fuels Ass'n, Inc. & Basin Elec. Power Coop. v BNSF Ry.*, STB Docket No. NOR 42088 (STB served Feb. 18, 2009) ("*WFA*")

⁵⁷ *Ariz Elec. Power Coop., Inc. v. BNSF Ry. & Union Pac R.R.*, STB Docket No. NOR 42113 (STB served Nov. 22, 2011) ("*AEPCO*")

⁵⁸ AAR Petition at 10.

⁵⁹ *West Texas*, 1 S.T.B. at 716 (prescribing maximum rates below 180% of variable costs); *Wisc Power & Light Co v. Union Pac R.R.*, 5 S.T.B. 955, 985 (2001) (same); *AEPCO*, slip op. at 2 (same).

Board held in the *Product and Geographic Competition Case*, shippers have no incentive to bring rate cases when they enjoy effective indirect competition, nor would they prevail in a rate case in the unlikely event that a shipper that enjoys effective indirect competition does bring a rate case.⁶⁰

The AAR also devotes a large chunk of its Petition to what it terms “revolutionary changes in the domestic supply market for natural gas [that] have pushed the price of gas to historic lows relative to coal, allowing natural gas-fired electric generation to displace significant amounts of coal-fired generation in many wholesale power markets.”⁶¹ Gas prices, of course, go up and down.⁶² but, more importantly, a coal shipper who is the asserted beneficiary of these “revolutionary changes” will not file a rate case if, in fact, its rail rates are being set at reasonable levels that reflect the existence of effective competition.

Finally, the AAR does not address the fact that real-world railroads are not responding to these “revolutionary changes” in a manner consistent with its daisy chain. For example, the CEO of Union Pacific Railroad Company (“UP”) recently stated that UP had no interest in reducing its rail rates – even if meant the utility plants would go out of business – because UP preferred to maximize its profits on its other lines of business:

⁶⁰ See *PG I*, 3 S.T.B at 948.

⁶¹ AAR Petition at 2.

⁶² See, e.g., www.eia.gov/dnav/ng/hist/rngwhhdd.htm (EIA’s listing Henry Hub Gulf Coast Natural Gas Spot Price (Dollars/Mil. BTUs)) The most recent reported natural gas spot price (for Wednesday January 9, 2013) was \$3.14/MMBTU. *Id.* This price is over 70% higher than the “historic low” spot price for natural gas recorded on April 13, 2012 (\$1.82/MMBTU). *Id.*

“We have a number of customers that come to us and say ‘If you don’t lower your coal rates we will go out of business.’” Koraleski said. “Unfortunately if their business is dependent on the value of their transportation contract and not on the intrinsic product that they are producing, they will probably go out of business anyway. And we also have to be sensitive to all of our other coal customers, so we take a very pragmatic approach.”

“I can tell you we are not straying away from our strategy, which is to price to re-investable levels, and if we can’t get to re-investable levels we will walk away from the business. We have stayed strong with that. and it has paid a great benefit for us. That’s where our head is. We will win some, and we will lose some. . . .”

“In the event you see us lose business, you can assume from that we could not meet the criteria and we were prepared to walk away because our franchise gives us plenty of opportunities to fill the gap and take advantage of the capacity to move other freight with other customers.”⁶³

The truth of the matter is that rail rates on most coal traffic have been increasing dramatically in recent years, not decreasing. WCTL has presented extensive evidence concerning these rate increases in other Board proceedings, and refers the Board to this evidence.⁶⁴

⁶³ “Word from UP: Don’t expect rate relief designed to keep companies in business,” *Coal & Energy Price Report*, Oct. 19, 2012 (quoting UP CEO Jack Koraleski).

⁶⁴ See Comments of the Western Coal Traffic League, Verified Statement of Duane Richards at 17, *Competition in the R.R. Indus.*, STB Ex Parte No. 705 (filed Apr. 12, 2011).

C. Neither Coal Shippers, Nor the Board, Should Be Forced to Expend Substantial Time, Effort, and Expense in An Unnecessary Rulemaking Proceeding

In addition to its utter lack of substantive merit, it would be very bad public policy for the Board to grant AAR's Petition for several interrelated reasons:

- AAR argues that its requested rulemaking is needed because coal traffic "has accounted for nearly two-thirds of the rate cases brought before the Board."⁶⁵ While this is an interesting historical observation, it has no bearing on the Board's current and future rate case docket. At the present time, there is only one coal rate case pending before the Board,⁶⁶ and, in that case, the shipper is challenging tariff rates with R/VC ratios in the 400% range.⁶⁷ Certainly the Board's current coal rate case docket – one case – is not evidence of a pressing need for the Board to institute a rulemaking proceeding devoted to market dominance issues in coal rate cases.

- WCTL/NMA and other non-railroad parties have limited financial resources. There are several cases pending before the Board where WCTL and other shipper organizations have devoted substantial time, effort, and financial resources, including the *Coal Dust Case*,⁶⁸ the *BNSF Acquisition Premium Case*,⁶⁹ and the *Rate*

⁶⁵ AAR Petition at 5.

⁶⁶ *Intermountain Power Agency v. Union Pac. R.R.*, STB Docket No. NOR 42136.

⁶⁷ *Id.*, Opening Evidence of Complainant Intermountain Power Agency at 1-9 (calculating R/VC ratios on the challenged rates at 380%, 388%, 399% and 406%, respectively).

⁶⁸ *Reasonableness of BNSF Ry. Coal Dust Mitigation Tariff Provisions*, STB Finance Docket No. 35557.

⁶⁹ *W. Coal Traffic League – Petition for Declaratory Order*, STB Finance Docket No. 35506.

Reforms Case ⁷⁰ WCTL/NMA, and other non-railroad parties, should not be forced to devote substantial time and effort to participate in yet another rulemaking proceeding, particularly one that is totally meritless and unnecessary.

- The Board is an agency with limited resources. There is no need for the Board to devote its limited resources to revisiting an issue the Board has already thoroughly addressed, and correctly resolved in an extensive rulemaking proceeding. Indeed, the filings in this case are stark reminders why the Board got out of the product and geographic competition business, as that business necessarily gets into very complicated and time consuming reviews of industry competition (here competition between utilities) that is far removed from the Board's primary area of expertise – freight transportation.


- Requiring shippers to address complex grid competition issues in a new rulemaking is just as onerous as requiring shippers to address grid competition issues in individual cases. The specter of re-introduction of allegations of product and geographic competition evidence in coal rate cases will also have the same chilling effects on coal shippers that led the Board to ban consideration of these esoteric forms of competition in the first place.

⁷⁰ *Rate Regulation Reforms*, STB Ex Parte No. 715.

CONCLUSION

WCTL/NMA respectfully request that the Board deny the AAR's Petition for the reasons set forth above.

Respectfully submitted,

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Dated: January 14, 2013

CERTIFICATE OF SERVICE

I hereby certify that this 14th day of January, 2013, I have served a copy of the foregoing by e-mail and by first-class mail, postage prepaid, upon all parties of record to this docket.


Peter A. Pfohl

**IDENTITY AND INTEREST
OF WESTERN COAL TRAFFIC LEAGUE AND
NATIONAL MINING ASSOCIATION**

Western Coal Traffic League ("WCTL") is an association whose membership is composed of organizations that purchase and transport coal mined west of the Mississippi River. WCTL members transport over 140 million tons of coal annually, nearly all of which moves by rail. Since its formation in 1977, WCTL has actively participated in all major proceedings before the Surface Transportation Board ("STB") and its predecessor, the Interstate Commerce Commission ("ICC") involving issues of concern to western coal shippers.

National Mining Association ("NMA") is a national trade association that includes the producers of most of the nation's coal, metals, industrial and agricultural minerals; the manufacturers of mining and mineral processing machinery, equipment and supplies; and the engineering and consulting firms, financial institutions and other firms serving the mining industry

WCTL and NMA have actively participated in the STB and ICC proceedings (and court appeals) culminating in the Board's 1998 decision to exclude the consideration of railroad allegations of product and geographic competition in maximum rate cases

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Docket No. EP 717

**PETITION OF THE ASSOCIATION OF AMERICAN RAILROADS TO INSTITUTE A
RULEMAKING PROCEEDING TO REINTRODUCE INDIRECT COMPETITION AS A
FACTOR CONSIDERED IN MARKET DOMINANCE DETERMINATIONS FOR COAL
TRANSPORTED TO UTILITY GENERATION FACILITIES**

VERIFIED STATEMENT

OF

JULIE M. CAREY

AND

JAMES M. SPEYER

JANUARY 14, 2013

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1. Introduction

My name is Julie Carey. I am an economist and a Director at Navigant Economics (a subsidiary of Navigant Consulting). My business office is located at 1200 19th Street NW, Suite 850, Washington DC 20036. I have significant experience studying U.S and international wholesale power markets to analyze competition and to evaluate market rules and market design features as well as experience analyzing retail competition and other economic issues associated with electricity regulation. I frequently analyze market power issues within the electric utility industry for the purpose of mergers and acquisitions, requests to obtain authority to charge market-based rates for wholesale sales of power and the evaluation of potential price manipulation claims. In addition, I have experience analyzing economic issues related to natural gas and coal markets as well as the railroad transportation industry. I have provided testimony on a wide variety of economic issues before numerous U.S. and Canadian regulatory agencies (including the Federal Energy Regulatory Commission ("FERC") and the Surface Transportation Board ("STB")), in U.S. federal and state courts and within arbitration. I have also provided advisory services to utility clients regarding mergers and acquisitions, quantifying generation asset valuations (utilizing production costing simulation tools), as well as other strategic planning decisions. Exhibit 1 describes my professional experience and identifies my prior testimony.

My name is James Speyer. I am a Senior Advisor at Navigant Consulting. My business office is located at 1200 19th Street, NW, Washington, DC 20036. I have 30 years of experience analyzing energy and environment issues, particularly those affecting the coal, gas, and electric utility and independent power industries. I frequently advise companies on fuel procurement, strategic planning, mergers and acquisitions, restructuring under competition, valuation of power projects, and compliance with environmental regulations. In addition, I have provided testimony before the U.S. Congress, state public utility commissions, arbitration panels, and federal and state courts. I received a B.S.E. degree in Industrial Engineering from the University of Michigan in 1967 and a M.P.A. degree in Economics and Public Policy from Princeton University in 1972. Exhibit 2 describes my professional qualifications and my prior testimony.

We have been asked by the Western Coal Traffic League and the National Mining Association to respond to the Verified Statement of Dr. Reishus submitted on behalf of the Association of

American Railroads ("AAR") regarding the potential introduction of indirect competition within market dominance determinations for coal transportation to utility generation facilities in STB coal rate cases.¹ The evaluation of indirect competition has substantial complexity and does not lend itself to "simple" solutions of the sort claimed by Dr. Reishus. The effort required to complete such an analysis is very substantial, necessitating at least many hundreds of hours for an expert(s) with detailed expertise in the operation of power markets to analyze very large volumes of granular data under a range of conditions. In addition, a lengthy and complex discovery process would be required to obtain the data needed for such an analysis. Moreover, any so-called simple solution such as suggested by Dr. Reishus is flawed, incomplete, and highly susceptible to produce false positives, i.e., erroneously showing a competitive constraint on railroad rates from product market competition when none exists. His analysis is also flawed in that he fails to consider the possibility that railroads will maximize their profits in response to so-called indirect competition by charging high rates on a reduced volume. Lastly, Dr. Reishus fails to consider the degree to which the very low natural gas prices experienced in 2012 will be sustained going forward and that coal is projected to remain the largest component of the U.S. electricity generation supply portfolio.

2. Background of Wholesale Electric Power Markets

Electricity is a highly complicated product because of its non-storable nature coupled with limitations on moving power across transmission lines. Generation must match load in real time, at each individual location, and the grid must have sufficient reliability to be able to handle contingencies without a loss of service. The transmission limitations, also referred to as transmission constraints, can, for certain periods of time, effectively wall off certain geographic regions from one another, thus limiting potential competition and creating very narrow geographic markets for which electricity generation facilities might compete.

Historically, U.S. electric utilities were vertically integrated such that they owned and operated generation facilities and transmission and distribution facilities necessary to serve customers located within their designated franchise service territory. Certain regions, including the

¹ Petition of the Association of American Railroads to Institute A Rulemaking Proceeding to Reintroduce Indirect Competition as a Factor Considered in Market Dominance Determinations for Coal Transported to Utility Generation Facilities, November 19, 2012. Verified Statement of David Reishus Supporting the AAR Petition

southeastern U.S., Pacific Northwest, inter-mountain and portions of the southwestern and midwestern U.S., have chosen to retain the traditional regulatory model and continue to operate in this fashion today. A significant portion of the U.S. remains under a traditional market structure regime.

Wholesale electric power operations have evolved over time. In some regions of the US, wholesale power sales (sometimes referred to as bilateral transactions), were relied on as a means to supplement a utility's power needs. In other regions of the U.S., such as the mid-Atlantic, tightly operated power pools have existed for a very long time. Today, there exist numerous entities that independently operate and maintain the transmission system and centralize and jointly operate power plants based on owners competitively bidding generating assets into the markets and wholesale customers purchasing that electricity. These markets, often referred to as regional transmission organizations ("RTOs") or independent system operators ("ISOs"), which are depicted in Figure 1 below², are characterized by hourly energy markets³ which can observe market clearing prices that vary widely during the day based on demand and operating conditions such as transmission constraints. The electricity markets and the rules that govern their operation are highly complex. There are different governing rules for every RTO/ISO and the details regarding the market rules can exceed thousands of pages.⁴ Even though RTOs/ISOs operate hourly energy markets, they do not preclude market participants from entering into bilateral sales for power, including agreements with long term commitments. This constitutes yet another dimension of complexity.

While the structure of these markets may have similarities, there are also substantial differences among them. Some RTOs/ISOs have a separate market for capacity (such as PJM and ISO New England Inc. ("ISO-NE"⁵)), which provides a fixed payment to generation owners operating power plants (and providing incentives for the construction of new capacity) to make the capacity available to the grid and ensure the system has sufficient levels of reliable generation

² As we discuss later, geographic markets can be delineated into regions smaller than the RTO/ISO

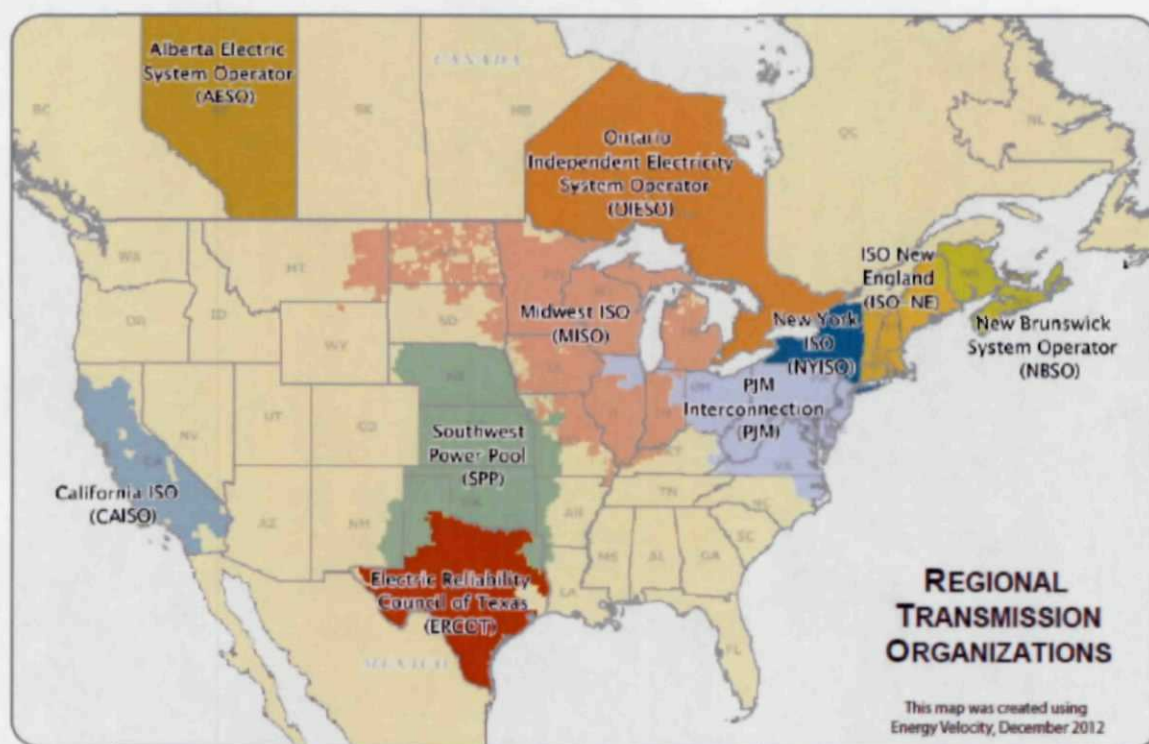
³ These markets typically function on both a day-ahead and real-time basis

⁴ For example, PJM Interconnection, L.L.C. ("PJM"), an independent entity operating wholesale markets encompassing the mid-Atlantic states and portions of the Midwest and Southeast, has approximately 40 manuals that detail the administrative, planning, operating and accounting procedures of the RTO. Many of these manuals contain approximately 500 pages of detailed complex, engineering, economic, operational and accounting procedures. <http://www.pjm.com/documents/manuals.aspx>.

⁵ ISO-NE is an independent entity operating wholesale power markets in the New England region

In these regions, some plants can receive a payment for being able to operate (which would effectively require an adequate stockpile in the case of a coal-fired plant) separate from their compensation, if any, for generating actual power. In other RTOs/ISOs that do not operate a formal capacity market (such as ERCOT and CAISO⁶), the energy revenue alone must be sufficient to provide full recovery of all costs and profit for a competitive generator, and to provide the appropriate incentive for the construction of new, competitive generation.

Figure 1
Regional Transmission Organizations⁷



In addition to energy and capacity markets, these markets each operate certain other product markets referred to as ancillary services. These products typically include operating reserves (sometimes referred to as spinning and non-spinning reserves) and other services that must be provided to support the generation and delivery of electricity on a secure and reliable basis. Centralized power markets have other features which require certain generating units to operate

⁶ Electric Reliability Council of Texas (“ERCOT”) and the California Independent System Operator Corporation (“CAISO”) are independent entities operating wholesale markets in Texas and California, respectively.

⁷ <http://www.ferc.gov/industries/electric/indus-act/rto/elec-ovr-rto-map.pdf>.

even when they are uneconomic in order to meet localized power needs in areas with local reliability issues associated with the transmission system. These units, often referred to as Reliability Must Run (“RMR”) units, are compensated in a different manner than the other power plants operating in the market.

Detailed evaluations of the competition within electricity markets require substantial and detailed analyses defining and evaluating the geographic and product market competition. Both the FERC and DOJ require antitrust analyses to be completed for mergers and acquisitions involving power generation facilities.⁸ More complicated analyses are required to the extent the operations of the merging parties overlap in the same or nearby geographic regions, and the more sizable the affected asset portfolios. At a minimum, to receive FERC approval of any transactions involving material overlap, the applicants analyze the potential competitive effects associated with the proposed merger across varying economic conditions including different seasons of the year and hours during the day. These analyses are required for the energy market within every defined geographic market.⁹ In addition, scenario analyses are sometimes required, and often used, to test the sensitivity to various assumed inputs, such as expected demand conditions and market prices.

Some appreciation for the depth of analysis required can be discerned from FERC’s recent approval of the merger of Constellation and Exelon. The primary RTO for which these two companies’ operations overlapped was PJM. For purposes of the FERC market power analyses of the PJM RTO, four geographic markets within PJM were defined and analyzed (PJM overall, and markets defined by constraints in PJM East, the 5004/5005 interface and the APSouth interface within PJM).¹⁰ There may be disputes about the appropriate definition of the geographic market. With respect to this particular merger, the PJM market monitor¹¹ provided

⁸ While railroad mergers require only STB approval, electric mergers require FERC and DOJ approval, and often that of state public utility commissions.

⁹ Other product markets, such as capacity and ancillary services can have different geographic market definitions and different ways to analyze competition.

¹⁰ Analysis of historic and prospective transmission constraints is required to define the relevant geographic markets. See Testimony of Joe D. Pace and Julie R. Solomon, Docket No. EC11-83, May 20, 2011. Of course, the geographic markets of relevance for a merger are dependent on the locations of assets owned by both the merging parties. Said differently, if neither party owns any assets in a relevant geographic market or only one party does, no analyses would be required. Ms. Carey provided consulting expert services for the merging parties in the FERC and state public utility commission proceedings responsible for approving the merger.

¹¹ A market monitor is an established entity whose role is to assist the RTO/ISO in the design of the market and ensure compliance with rules, standards, procedures and practices. In addition, the market monitor looks for

testimony and concluded that thousands of geographic markets existed coinciding with any transmission constraint that was binding for 100 or more hours a year.¹² The overall analyses, including what was filed at FERC and in state regulatory proceedings, required hundreds of pages of testimony, exhibits, and extensive confidential workpapers.¹³

In support of his claim as to the “remarkable quantity and quality of publicly available data”, Dr. Reishus points to certain analyses completed to evaluate competition in the electricity industry, specifically Market Based Ratemaking (“MBR”) proceedings before the FERC (page 69-70). The purpose of these analyses is to determine if a seller passes simplified threshold indicative screens for market power required to obtain and retain authority to sell power at market based rates.¹⁴ The focus in the FERC MBR proceedings is not to analyze the degree to which coal and natural gas compete. Indeed, the primary threshold analyses do not in any way take into account the economics of different types of generating capacity – every megawatt is treated the same.¹⁵ Nor does the FERC seek to answer the threshold question raised here as to whether or not such generation competition between coal and natural gas fired power plants is a constraint on railroad transportation rates. In fact, much more complicated analyses are required to answer these questions.

3. A Complicated and Granular Analysis is Required to Determine if Indirect Competition is an Effective Competitive Constraint to the Railroad Transportation Rate

a. Geographic Market Definition

The first step in determining if electricity generation competition is an effective competitive constraint to the railroad transportation rate is to define the relevant geographic market for

structural flaws that may inhibit a robust and competitive market and monitors the potential of market participants to exercise market power.

¹² Review and Analysis of the Proposed Merger of Exelon and Constellation, The Independent Market Monitor for PJM, Docket No. EC11-83, September 16, 2011. Note that there was a negotiated settlement between the merging parties and the PJM market monitor enabling the merger to proceed.

¹³ Workpapers associated with a FERC filing seeking merger approval can entail hundreds of electronic files and 500-1000 MB of data which comprise the detailed calculations, analyses and supporting evidence.

¹⁴ In fact, the standard analyses seek to analyze two metrics, (1) if the applicant is a pivotal supplier (i.e., can the peak electricity demand be served without the applicant’s uncommitted generation) and (2) if the applicant has a share of total uncommitted capacity in excess of 20 percent in any of 4 seasons.

¹⁵ If the threshold analyses produce screen failures (i.e., greater than 20% market share and/or demonstration that the applicant is a pivotal supplier), the applicant can choose to complete a more detailed analysis involving delivered cost estimates for each generator located in the geographic market for numerous seasonal and time of day periods.

electricity production. Market definitions hinge on properly identifying and properly evaluating potential substitutes for a given product. Economic substitutes can also differ by season, time of day, or load/operating conditions. The FERC defines the relevant market for the purposes of merger approval by "... identifying potential suppliers based on market prices, input costs, and transmission availability, and calculates each supplier's economic capacity for each season/load condition."¹⁶ Defining the appropriate geographic market for electric generation competition is critical to determining if railroad transportation rates are effectively constrained by such electricity generation competition. If one defines the market too broadly, the analysis could falsely identify competition between natural gas and coal fired power plants that does not exist in the geographic market for which these plants operate. Similarly, if one defines the market too narrowly, the analysis could fail to include actual competitors in supplying electricity from coal and natural gas power plants

b. Empirical Analysis of the Economic Dispatch of Power Generation Facilities for the Defined Geographic Market

The next step required to understand to what extent electricity generation competition between natural gas and coal fired power plants acts as a competitive constraint to the railroad transportation rate is to complete a very detailed and time consuming empirical analysis of hourly power market activities for the relevant geographic market using an hourly electricity production simulations (or "dispatch") model such as PROMOD IV. Specifically, PROMOD is a detailed hourly chronological market model that simulates the dispatch and operation of the wholesale electricity market. PROMOD is a least-cost optimization model that simulates the hourly operation of the energy market, while observing generator operating limitations and transmission constraints.¹⁷ Such models are used to forecast hourly electricity output and expected electricity prices and costs under a range of demand and supply conditions, and the model outputs are used for planning purposes as well as forecasting financial results.

¹⁶ The FERC defines the relevant market to include suppliers that could sell into the destination market at a price less than or equal to 5 percent more than the market price. 107 FERC ¶61,018 ("AEP Order at App F"), see also Inquiry Concerning the Commission's Merger Policy Under the Federal Power Act' Policy Statement, Order No 592, 77 FERC ¶61,263 (mimeo), FERC Stats & Regs ¶31,044 (1996), reconsideration denied, Order No 592-A, 79 FERC ¶61,321 (1997) Merger Policy Statement at 6; Order No 697 at P 108.

¹⁷ See the following technical brochure for more details about PROMOD
<http://www.ventyx.com/en/resources/typc/brochures/PROMODIV-TechOverview>

Complex electricity production simulations models are required to reflect the complicated nature of the transmission system (including transmission constraints), encompassing thousands of generating units and their availability and operational parameters along with the networked relationships between resources and load, and the need to reflect the varying system conditions that exist over the course of the 8,760 hours of a typical year.¹⁸ The market simulations include detailed economic characteristics of each generating unit in the geographic market being analyzed, including variable operating costs (fuel costs and variable operating and maintenance costs), environmental control equipment, and generating unit operating characteristics, such as how fast a plant can ramp up and ramp down production, minimum operating levels and periods, and forced and unforced outages of power plants. Market simulation modeling accounts for the complicated transmission networks, specific locations and characteristics of the generating facilities, and customer load as well as the general operating conditions of the electricity system, de-ratings of power plants capacity to expected operating levels (which are particularly relevant for renewable resources) which vary across the time of day and year. In addition, market simulation modeling accounts for refueling cycles for nuclear plants, environmental controls, and various reliability requirements, including some that require certain power plants to operate for reliability purposes instead of based purely on unit economics.

In the context of determining economic substitutes, or competitive constraints, the economic dispatch simulation is needed to analyze the impact of various rail transportation rate assumptions on the coal fired power plant operating performance, namely the generation of the plant (and, specifically, each generating unit) which is then used to calculate the coal consumption at the plant and each generating unit.¹⁹ Multiple simulations would need to be completed²⁰ assuming different rail transportation rates and, with the electricity production levels associated with the varying rail transportation rates, one can determine the impact on the quantity of tonnage consumed by the coal fired power plant, which can assist in determining the quantity impact of varying rail transportation rates on the railroad's profitability.

¹⁸ For example, in the Eastern Interconnect there are over 14,000 generating units that are currently operating

¹⁹ These economic dispatch analyses would need to be conducted for a few historical years as well as a few future years to determine with some degree of confidence that the claimed competition, in fact, does exist and is not temporary in nature. In addition, certain sensitivity analyses may be helpful testing the range of potential results across some variation in forecasting or other input assumptions used in the analyses.

²⁰ It also is necessary to calibrate the dispatch model in order to analyze historic years for benchmarking purposes.

The effort and cost associated with preparing the economic dispatch simulation model and necessary input data along with completion of the necessary calibrations for the historical years is significant. In addition, substantial time would be involved in developing, running and analyzing the economic dispatch simulation model for the different rail transportation rates and sensitivity analyses. Also, substantial time would be required to prepare, analyze and respond to extensive discovery requests. In short, a large modeling effort and discovery process would be required to appropriately analyze the impact of varying rail transportation rates on the quantity of coal consumed at each coal power plant.

The above analysis is much more complex and time consuming than the “simple” analysis described in Dr. Reishus’ Verified Statement.

c. Analysis of Other Factors

Once the economic dispatch simulation modeling effort is complete, several other steps, which Dr. Reishus ignored, are required. For example, to evaluate whether or not a rail transportation rate to a coal fired power plant is effectively constrained by product market competition between natural gas and coal fired power generation requires an analysis of the level of the asserted competitive price ceiling. It is important to emphasize that the existence of some form of competitive alternative that constrains railroad pricing does not mean that the alternative provides “effective competition” for regulatory purposes. As stated by one court in a case involving railroad transportation of oil:

At the core of the “effective competition” standard is the idea that there are competitive, market pressures on railroads deterring them from charging monopoly prices for transporting goods. *Of course, any such effective competition will always be relative to a particular price that the railroads charge.* At some point the availability of an alternative such as the horse and buggy or even people carrying oil in buckets theoretically prevents railroads from raising their rates beyond an outer bound. But the mere existence of some alternative does not in itself constrain railroads from charging rates far in excess of just and reasonable rates that Congress thought the existence of competitive pressures would ensure.²¹

²¹ *Arizona Public Service Co. v. United States*, 742 F.2d 644, 650-51 (D.C. Cir. 1984)

In addition, the analysis will need to address other important factors that may not be captured in the dispatch model such as whether any factors not included in the model are actually impacting real world dispatch practices (e.g., the existence of term coal contracts with minimum volume obligations); and whether a railroad is engaging in a profit-maximizing strategy where it is not setting its price to maximize tons transported, but is setting a higher price, which reduces the total number of tons transported, but produces a higher total profit contribution (i.e., revenues in excess of variable costs) on the tonnages that are transported, or other similar forms of pricing strategies.

4. The Railroads Overstate the Effect of Electricity Competition Between Coal and Natural Gas Fired Generation Plants on Rail Transportation Pricing and Mistakenly Claim that Only Simple Analysis is Necessary to Evaluate Such Competition

a. The Railroads Overstate the Effect of Indirect Competition on Rail Transportation Pricing

Dr. Reishus claims (on pages 61-66) that recent evidence demonstrates the effect on railroads from electricity competition between coal and natural gas generation plants. Even if there is some theoretical ability of electricity generation competition to provide a competitive constraint on input suppliers like railroads for delivered fuel for coal fired generation, Dr. Reishus provides little direct evidence of railroad behavioral response to such market dynamic.

Indeed publicly available evidence is to the contrary. For example, Union Pacific CEO Jack Koraleski made clear during his 3Q12 earnings call that Union Pacific did not intend to reduce its coal transportation rates, even if the consequence was a loss of business:

“We have a number of customers that come to us and say, “If you don’t lower your coal rates we will go out of business,” Koraleski said. “Unfortunately, if their business is dependent on the value of their transportation contract and not on the intrinsic product that they are producing, they will probably go out of business anyway. And we also have to be sensitive to all of our other coal customers, so we take a very pragmatic approach.

“I can tell you we are not staying away from our strategy, which is to price to re-investable levels, and if we can’t get to re-investable levels we will walk away from the business. We have stayed strong with that, and it has paid a great

benefit for us. That's where our head is. We will win some, and we will lose some."²²

In addition, Dr. Reishus' statement gives the impression that the shale gas revolution will result in a substantial elimination of coal generation. Such claims should be put in context. On December 5, 2012, the EIA issued its "AEO2013 Early Release Overview." While substantial quantities of coal retirements are expected, the U.S. coal fleet is very large and the EIA continues to forecast coal to be the largest component of the future U.S. electricity generation portfolio.²³ As such, railroads will continue to deliver coal to hundreds of coal fired power plants. As CSX CFO Fredrik Eliasson has recently confirmed, "most experts agree . . . that the low price for natural gas is not sustainable over the long term, while coal prices will remain relatively stable."²⁴

b. Railroads Mistakenly Claim that Only Simple Analysis is Necessary to Evaluate Such Competition

Dr. Reishus claims that a simple analysis based on publicly available data can accurately identify indirect competition for rail transportation of coal used in power generation. However, a simple analysis is not sufficient to evaluate the railroad impact from indirect competition for the reasons stated above and developed more fully below.

i. Example 1: Change in Coal Fired Power Plant Generation from One Year to the Next

The first example of a proposed analyses provided by Dr. Reishus (page 71-75) suggests that merely looking at the change in coal fired generation output from one year to the next is sufficient to conclude that rail transportation rates are constrained. The analysis is far too simplistic.²⁵ The analysis proposed is too aggregated as it does not consider variations across the hours of the day or days of the month and fails to separately report each generating unit's production levels, which could mask different variations in production levels at a plant level.

²² The quoted text is from the Coal & Energy Price Report, October 19, 2012, p. 1, but the transcript is available from other sources.

²³ http://www.eia.gov/forecasts/aeo/cr/early_elecgen.cfm

²⁴ Trains Magazine, "CSX navigates a new economy," February 2013, p. 8

²⁵ Dr. Reishus does admit that "the approach displayed in Figure 20 is simple," and he explains that "there are other ways of looking at the pattern of generation output from a coal-fired power plant in response to potential competition from natural gas-fired generation, such as monthly generation output, hours run, generation output at different hours of the day, and the like." Reishus Verified Statement at 75.

The electricity generation at a power plant can fluctuate significantly from year to year as a result of many potential supply side or demand side market factors or plant specific reasons. The analyses does not determine if the reduced generation was attributable to a temporary event such as lower than expected electricity demand due to such factors as a warmer winter or decline in economic output, or an extraordinary dip in natural gas prices. For example, last winter (December 2011 through February 2012) was the fourth warmest on record and the warmest in more than a decade.²⁶ In the view of many analysts, the warm winter gave rise to unexpected large volumes of stored natural gas, which in turn gave rise to the unexpectedly low natural gas prices. Natural gas prices are now substantially above the level they were last winter. For example, on April 20, 2012, the spot price of natural gas fell to its lowest level in more than a decade, settling at \$1.82 per MMBTU, while recent prices have remained above \$3.00 per MMBTU.²⁷

Furthermore Dr. Reishus fails to investigate whether the generating unit operating and design characteristics, such as a forced or unforced outage, or other network impediments, such as transmission constraints may have impacted the plant's generation output from one year to the next. In addition, the analysis fails to discern if the lower generation level will persist into the future.²⁸ In addition, a relevant analysis would need to carefully evaluate the impact on the electricity grid or future transmission constraints impacting the operation at the coal plant.

Lastly, the proposed analysis of the change in coal generation fails to make a causal link between the reduced coal generation, product competition with natural gas fired plants, and rail transportation rates. This analysis does not provide any estimate of the different generation and coal consumption levels that would result with different rail transportation rates. Further, it does not address railroad economic incentives by comparing the tradeoff of lower volumes of coal consumed and a higher transportation rate and the impact on railroads' profits for that movement, nor does it address whether the level of the asserted competitive constraint provides a reasonable cap on rail rates. As a result of these failings, the proposed analysis of the change in coal generation is inconclusive and unreliable.

²⁶ "Coal Market Works to Avoid Winter Redux," Argus Coal Weekly, December 28, 2012.

²⁷ <http://www.eia.gov/dnav/ng/hist/rngwhhdd.htm>

²⁸ The analysis would need to determine if the coal plants are expected (or likely) to be retired.

In fact, an analysis of this kind could lead to false positives by showing that product market competition effectively constrains railroad transportation, when in fact, there is no effective constraint. This false positive would occur under circumstances under which product competition is simply assumed to cause the reduction in generation, when, in fact, other factors, such as lower than expected demand or plant operational performance problems, caused the temporary reduction in generation. Moreover, a false positive could occur under other circumstances including situations whereby some reduced generation was observed, but the railroad could raise its transportation rate to more than offset the revenue decrease from the reduced generation to result in an overall increase in railroad profits. Finally, a false positive could occur if the asserted competitive price is not a reasonably effective competitive cap for rate regulation purposes. In each case, assuming product competition was at work would be flawed.

ii. Example 2: Changes in Capacity Factors and Wholesale Power Supply Curve

The second example provided by Dr. Reishus (page 75-79) suggests that looking at capacity factor curves and wholesale power supply curves within the power plant region is sufficient to conclude that rail transportation rates are constrained.

The reliance on capacity factor curves is flawed because it ignores the essential underlying analysis required to define the appropriate geographic market in order to ensure that one is comparing power plants that could potentially compete with one another. In addition, the capacity factor curves analysis is flawed for all of the reasons that simply looking at the changes in production levels from the coal fired power plants (Example 1) is flawed. There are many supply-side and demand-side market factors as well as plant specific reasons that can cause the generation levels at a plant and therefore the capacity factor to change over time. Dr. Reishus fails to investigate whether the generating unit operating and design characteristics, such as forced or unforced outages, or other network impediments, such as transmission constraints, may have impacted the generation output and capacity factors of the power plants from year to year. In addition, the analysis fails to discern if the relative levels of capacity factors will persist into the future. We also note that this analysis is, again, too aggregated as it does not show variations across seasons of the year and times of the day, which could mask different patterns associated

with the capacity factor changes. Similar to the prior example, this analysis fails to evaluate the economic incentives of the railroad.

In this second example, Dr. Reishus also indicates that a review of the wholesale power supply curve for “the plant’s region” can identify where product market competition is sufficient to constrain rail transportation rates. Again, this proposal completely ignores the threshold analysis required to define the appropriate geographic market to ensure that one is comparing power plants that could potentially compete with one another. It fails to evaluate and reflect realities of the transmission system limitations and constraints that could limit potential competition between power plants.

The wholesale power supply curve reflects the marginal cost of production for each generating unit.²⁹ However, it provides just a single snapshot in time by displaying effectively a single hour versus evaluation across all 8,760 hours in the year. It fails to analyze the pattern of wholesale power supply curves across the rest of the days, months and seasons of the year. Since fuel costs are a substantial portion of the generating unit’s marginal cost, variations in generating units’ marginal costs occur across the year, as natural gas prices change frequently, sometimes with daily pricing, as compared to the delivered coal costs, which usually have minor short term cost fluctuations. In addition, this analysis fails to analyze the pattern of the wholesale power supply curve in the past few years or what the curve will look like in the future.³⁰ Thus, one cannot determine from this analysis if any pattern reflected has held for a period of time and is likely to

²⁹ As noted by Dr. Reishus, the marginal cost may not capture other aspects of a generator’s operations that may affect its dispatch into the grid. Differences in the grid-related costs for coal and natural gas fired plants would also need to be factored into a comparison.

³⁰ Numerous disparate pricing elements such as coal, rail, natural gas, pipeline and electricity would need to be in concert for an indirect competition to be an effective constraint on railroad transportation pricing. Contracts for each of these products typically have different time durations that pose an obvious disconnect and limitation on the ability of railroads to provide a competitive constraint. For example, in contrast to rail transportation contracts which are frequently medium to long-term in duration, while coal contracts can vary in length from short term to longer term, many contract are relatively short term in nature and often extend just a few years, and natural gas markets rely heavily on short-term fuel contracts and longer term pipeline contracts. In addition, electricity can be sold either through central markets (on a day-ahead or real-time basis) or bilateral contracts with a range of contract terms. If some of the power produced from the coal and natural gas fired plants is sold pursuant to bilateral power purchase agreements, which have contract prices incongruent to the marginal cost of the plant, in some circumstances (depending on the contract terms), the plant could be operating out of dispatch rank order. Under such circumstances, an additional potential disconnect exists and railroad transportation pricing would also need to conform with the pricing mechanism and contract term of the electricity power contract.

persist in the future³¹ The wholesale power supply curve does not reflect plant availability or operational parameters (such as forced or unforced outages, minimum operating requirements, ramp up and ramp down rates) or the dynamic changes in the electricity system conditions

Lastly, as was the case with the first example provided by Dr. Reishus, the wholesale power supply curve fails to make a causal link of the reduction in capacity factors or wholesale power supply curve rankings of coal versus natural gas plants and rail transportation rates. This analysis does not provide any estimate of the change in capacity factors or the wholesale power curves at different rail transportation rates. Also, it makes no evaluation of railroad economic incentives by comparing the tradeoff of lower volumes of coal consumed and a higher transportation rate and the impact on railroads contribution for that movement. Finally, it makes no attempt to determine whether any resulting competitive cap on rail rates is an effective one for rate regulation purposes. Thus, the analysis is inconclusive and unreliable.

False positives could also result because the geographic market definition was ill-defined, suggesting that power plants compete when they might not.

c. Concerns with Relying on Publicly Reported Electricity Data Referenced by Dr. Reishus [page 67-70]

Dr. Reishus points to certain public data as potential sources for his analyses. For example, he references publicly reported data for estimated supply curves³² First, I note that the government and RTO data is not as contemporaneous as one would like since a significant delay occurs before the data is made available by the government/RTOs or 3rd party vendors. RTO bid data “masked” as to units/owners is typically made publicly available with a six month delay.³³ Most other data, published by such sources as EIA or DOE, is not contemporaneously available at all, or in a readily usable form until published by 3rd party vendors.³⁴ Moreover Dr. Reishus’

³¹ We also do not know what vintage of the data that was included in the cost components of the marginal costs calculations made by Dr. Reishus (particularly for the fuel costs). Also, calculations need to consider any timing issues associated with the fact that natural gas prices change on a daily basis but coal prices typically don't change over the course of a year

³² It is worthwhile to explain that the actual bids for each generating unit bid into the RTO/ISOs energy markets (on a day ahead or real time basis) are treated as confidential and proprietary

³³ <http://www.pjm.com/markets-and-operations/energy/real-time/historical-bid-data/bids-1tr-auction-annually.aspx>
Dr. Reishus relies on an estimate of the marginal cost of production for each generating unit to complete his wholesale power supply curve analysis, which may differ from the bid submitted for each generating unit into the wholesale power market.

³⁴ The power plant operations report cited by Dr. Reishus (page 68) is not available in a timely manner.

approach, which limits a complex analysis of competition to only limited bits of historical data, can easily miss important market changes. For example, the time period that Dr. Reishus relies upon for his illustrations reflects extraordinarily low natural gas prices. The industry consensus view is that recent past natural gas prices are below equilibrium and future prices will rise.³⁵ For these reasons, a narrow, historical snapshot of a moment in time is insufficient for the analysis at hand.

In addition, due to the confidential nature of certain information, it is not surprising that some imprecision arises in publicly reported information results. It is often the case that even if public data is available, it needs to be vetted and used with caution. For example, rail transportation contracts are confidential and therefore public data sources attempt to estimate the new contract prices.³⁶ Another example is heat rate curves for generating units, which detail how efficient the power plant is at converting fuel (i.e., coal, natural gas, etc.) into electricity at different production levels. This information was once publicly available, but as competitive markets developed much of this data has been deemed confidential and only estimated data is available publicly. In other instances information regarding purchases and sales of power can be confidential.

Therefore, if there is a true debate before the STB about whether or not rail transportation rates are effectively constrained by coal and natural gas fired generation competition, it's hard to imagine that affected parties on both sides will be satisfied with using public data. Thus, extensive, complicated, and lengthy discovery disputes will inevitably ensue.

Dr. Reishus points to analyses submitted to the FERC within Market Based Ratemaking (page 69-70) as potentially relevant information to rely upon here as discussed earlier. These analyses are wholly insufficient for the purposes identified here. They are significantly backward looking, most filings are not granular; the few granular analyses required are treated as confidential. Similarly analyses of import capability are historical in nature, outdated at the time

³⁵ Thus, future competition between coal and gas fired power plants will likely be less than what was observed in the spring/summer of last year. For the first half of 2012, the spot price of natural gas largely remained in the \$2.00-2.50 per MMBTU range, including dipping to \$1.82 on April 20, 2012.

<http://www.eia.gov/dnav/ng/hist/mgwhhdd.htm> Nymex futures prices for natural gas are reported for the mid \$3.00 per MMBTU range for this winter and increasing to approximately \$4.00 per MMBTU during the 2014 winter period. http://www.cmegroup.com/daily_bulletin/Section61_Energy_Futures_Products_2012250.pdf.

³⁶ We have personally observed some large discrepancies between actual rail transportation contract rates and public estimates of such rates.

they are conducted, and filed under Critical Energy Infrastructure Information Regulation (CEII) Moreover, as we describe above, the purpose of the FERC competitive analyses is to understand whether an individual company passes threshold screens for market power which is distinct from the purpose here. Such analyses do not add anything material to the debate about whether competition between gas-fired and coal-fired generation constrains rail pricing behavior

5. Conclusions

- 1) Dr. Reishus' analysis is far too simplistic for the intended purpose and does not properly identify the change in coal consumption at coal fired power plants due to changes in rail transportation rates or the impact on changes in coal consumption on railroad profits. Moreover, coal-fired generation will continue to be a largest component of the U.S. electricity generation supply portfolio according to the EIA.
- 2) In order to evaluate whether electricity dispatch effectively constrains rail rates, it is necessary to undertake a geographic market analysis (to determine the appropriate natural gas power plants that potentially compete against the coal fired power plants). It is also necessary to complete a time consuming, costly and detailed electricity simulation for each coal fired power plant/unit on an hourly basis, for a few historical years and a few future years and at different rail transportation rates to calculate the impact of alternative railroad transportation rate on coal consumption at the plants/units. Finally, several other critical factors need to be analyzed including restraints on dispatch not addressed in simulation studies; actual railroad pricing practices to determine what profit maximizing strategies may exist; and whether the asserted competitive alternatives are placing effective caps on rail pricing for regulatory purposes. In order to conduct the analysis described above, a lengthy, complicated, and extensive discovery process would be required. The parties, as well as the STB itself, would have to devote substantial resources to the analysis.

VERIFICATION

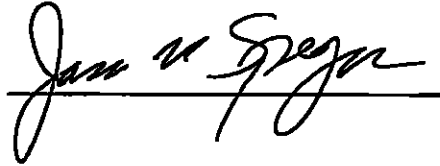
I, Julie M. Carey, declare under penalty of perjury, that the foregoing statement is true and correct and that I am qualified and authorized to file this statement

Executed: January 14, 2013

Julie M. Carey

VERIFICATION

I, James M. Speyer, declare under penalty of perjury, that the foregoing statement is true and correct and that I am qualified and authorized to file this statement

A handwritten signature in black ink, reading "James M. Speyer", is written over a horizontal line.

Executed: January 14, 2013

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Professional History

- Principal, LECCG, 2004-2010
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- M.A., Economics Pennsylvania State University
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Summary

Julie M. Carey is a Director and Principal at Navigant Economics. She is an economist who focuses on energy and regulatory economics and antitrust analyses, primarily involving electricity, natural gas, coal, railroad transportation, crude oil, renewable energy, and telecommunications industries. She has a deep understanding of the unique economics of network industries.

Ms. Carey has been working on energy economic issues within litigation and regulation for nearly 20 years and has provided expert testimony before US and Canadian regulatory agencies, US courts and within international arbitration on energy economic issues for the past decade. She routinely provides testifying and consulting expertise in disputes assisting with damages assessments, analyses of markets and market designs, evaluation of contracting practices, asset valuations, and environmental analyses. Her engagements also involve antitrust issues, such as competition analysis, analysis for approval for mergers and acquisitions or other antitrust claims.

Electricity Industry Experience

Ms. Carey has testified on matters related to competition within wholesale electricity markets and has provided consulting expertise analyzing competition in retail electricity markets, default service supply as well as capacity and ancillary services markets. She performs market screen and delivered price test analyses for merger and acquisitions and market-based rate authority at the FERC which includes economic analyses of product and geographic markets as well as evaluations of transmission constraints and import capabilities. She has evaluated participant behavior and claims of market manipulation.

She has proffered testimony on power plant performance, assessed forecasts of new electric generating capacity and evaluated fuel supply projections. She routinely provides expert consulting services in commercial disputes including allegations of breach of contracts, partnership disputes, delayed plant operations, diminished value claims, violations against the EPA clean air act, among others. She has assessed and quantified economic damages in dozens of cases. For many of these engagements, she has also reviewed hundreds of power purchase agreements to evaluate contract pricing, force majeure provisions and other contract terms. Her work frequently involves evaluation of market rules and market design features for wholesale power markets as well as participant behavior in wholesale markets. She has also completed asset valuations for a variety of purposes.

Renewable Industry Experience

Ms. Carey routinely analyzes competition and economics in wholesale electricity market inclusive of the unique economics and operational aspects of wind, photovoltaic and thermal solar, geothermal, and hydro power generation supply relative to the rest of the supply. She has provided expert testimony regarding economic damages of a claimed dispute with a power purchase agreement involving a geothermal power plant. She has provided consulting expert services assessing damages in commercial disputes involving renewable generation facilities, such as hydro and geothermal plants. She has analyzed the reasonableness of offshore wind power purchase agreement for regulatory approval. Ms. Carey provided consulting expert services analyzing liability

and economic damages with respect to delayed operations of a polysilicon manufacturing plant and effect on sales of solar panels. She has analyzed the capital costs and operating costs of wind, solar, geothermal, hydro generation capacity and other renewable generation as well as incentives and subsidies and is familiar with renewable energy standards. She has provided environmental and economic impact analyses of investments in the renewable sector. Through her assignments, she has reviewed and analyzed hundreds of power purchase agreements, including all types of renewable contracts for a variety of purposes including benchmarking and other economic analyses in litigation as well as advisory consulting services.

Natural Gas and Crude Oil Industry Experience

Ms. Carey's engagements in the natural gas industry have included consulting relate to antitrust issues and competition analysis of wholesale natural gas markets. For example, she has evaluated market participant behavior within commercial litigations involving claims of market manipulation. Ms. Carey has provided consulting expertise analyzing economic damages in numerous commercial disputes involving natural gas tolling contracts to electric generation plants. She routinely analyzes natural gas and oil markets as an input fuel to electricity generation plants including analyzing historical and forecasted delivered fuel cost to various electricity generators throughout the US and Canada. Ms. Carey has studied the impact of unconventional sources of natural gas on electricity generation markets as well as evaluated the environmental and economic impact of capital investment related to shale gas and unconventional oil. In addition, she has conducted numerous competition analyses of crude oil and refined product pipelines including relative competition from rail transportation delivery from origin sources located within the U.S. and Western Canada.

Coal Industry Experience

Ms. Carey has experience analyzing US and international coal basins and has proffered testimony on long term fuel supply assessments. She has testified more than a dozen times before the Surface Transportation Board ("STB") on issues such as long term forecasts of coal volumes from US coal basins and import from foreign sources to U.S. coal fired power plants, industrial facilities and to export terminals. She has reviewed many coal contracts and provided consulting expert services in a lawsuit alleging violations against the EPA clean air act and has provided expert testimony analyzing the economic damages from claims of breach of coal contracts. She has analyzed the impact of environmental regulations of SO₂ and carbon on coal generation facilities and evaluated coal substitutability in terms of quality and economics.

Railroad Transportation Industry Experience

Ms. Carey has testified more than a dozen times before the STB in disputes regarding rail transportation rates to coal fired power plants. She has analyzed long term forecasts of rail transportation rates to coal fired power plants, industrial customers, and export terminals. She has completed many historical transportation rate studies and evaluated revenue attribution methodologies for shared facilities. Ms. Carey has reviewed hundreds of rail transportation contracts to evaluate contract pricing and other provisions. She has conducted numerous competition analyses of rail and pipeline transportation of unconventional sources of crude oil in the U.S. and Western Canada. She has completed a variety of other types of economic analysis of railroads including competition analyses and disparate impact analyses of local taxes on railroad services.

Telecom Industry Experience

Within the telecommunications industry, Ms. Carey has testified on the determination of embedded and forward looking costs, universal service and other economic issues. She has also analyzed markets, quantified damages and completed valuation analyses in commercial disputes regarding claims of breach of contracts (including IRUs and leases) and other claims. Her assignments often focus on the high capacity fiber optic transport portion of US and international telecom networks. From this work she has reviewed many fiber and capacity contracts to evaluate contract pricing and other provisions. She has provided consulting expert services in approximately one dozen commercial disputes involving delayed provisioning of telecom services, claims of breach of contracts, and other types of disputes.

Publications, Presentations and Reports

- » **How Unconventional Oil And Gas Is Supercharging The U.S Economy, Forbes (online) Julie M. Carey, December 13, 2012.**
- » **Unconventional Resources, Economic Growth and Power Generation Implications, Julie M Carey, presentation at the PowerGen conference, Orlando Florida, December 13, 2012**
- » **Surprise Side Effect Of Shale Gas Boom: A Plunge In U.S. Greenhouse Gas Emissions, Forbes (online), Julie M. Carey, December 7, 2012.**
- » **The Unconventional Path for Domestic Crude Oil and Natural Gas Resources, US Association for Energy Economists Dialog, Julie M Carey and Christopher L. Ring, September, 2012.**
- » **Shale Gas and Oil. Economy-Wide Game Changers, Natural Gas Notes, Julie M. Carey and George K Schink, August 1, 2012**
- » **Spent Nuclear Fuel Management How centralized interim storage might expand options and reduce costs, A study conducted for the Blue Ribbon Commission on America's Nuclear Future, Cliff W. Hamal, Julie M Carey, Christopher L. Ring, May 2011.**
- » **Meeting the Challenge of Spent Fuel in Decommissioned Storage, Presentation to Blue Ribbon Commission on America's Nuclear Future, Cliff Hamal, Julie Carey and Chris Ring, January 3, 2011.**
- » **The Renewable Transformation and Nine Trends to Watch For, Cliff W Hamal and Julie M Carey, US Association for Energy Economists Dialog, November 2010.**
- » **Capacity Market Design Fundamentals, EUCI conference workshop, Cliff Hamal, Julie Carey and Cleve Tyler, Baltimore, MD, October 27, 2010**
- » **Strategic Recommendations for Expiring Power Contracts, Confidential Report, Cliff W Hamal and Julie M Carey, Prepared On Behalf of Ontario Power Authority, January 22, 2009.**
- » **Force Majeure Risks and Ontario Power Authority's Power Contracts, Cliff W. Hamal and Julie M. Carey, Prepared On Behalf of Ontario Power Authority, March 31, 2008.**
- » **Financial Accommodation For Force Majeure Events, Cliff W. Hamal and Julie M. Carey, Prepared On Behalf of Ontario Power Authority, January 21, 2008**
- » **Power Generation Investments in a Capacity Demand-Curve Market, Cliff W Hamal and Julie A Murphy, The Energy and Utility Project, May 2005**
- » **Market Forum Participant for the Future Outlook for Fuel Cell Generating Technology, April 13, 2005.**

Testimony Experience

December 21, 2012	FERC Docket No. ER96-1551-__ and ER01-615-__ and ER09-74-__, Triennial Update for Market Based Rate Authority for Public Service Company of New Mexico, Affidavit of Julie M. Carey
October 24, 2012	HS Orka hf. vs. Nordural Grundartangi, ehf and Orkaveita Reykjavíkur, In the Matter of a Commercial Arbitration, Expert Rebuttal Report of Julie M. Carey.
September 18-19, 2012	On behalf of Montana Alberta Tie Ltd ("Enbridge – MATL"), Alberta Utilities Commission, Proceeding 1633, Testimony of Julie M. Carey (with Cliff Hamal)
August 29, 2012	HS Orka hf. vs. Nordural Grundartangi, ehf and Orkaveita Reykjavíkur, In the Matter of a Commercial Arbitration, Expert Report of Julie M. Carey
June 29, 2012	FERC Docket No. Docket No. ER11-47, Triennial Update for Market Based Rate Authority for American Electric Power Company, et al in the Southwestern Power Pool region, Affidavit of Julie M. Carey
June 15, 2012	On behalf of Montana Alberta Tie Ltd ("Enbridge – MATL"), Alberta Utilities Commission, Proceeding 1633, Testimony of Julie M. Carey (with Cliff Hamal).
March 1, 2012	FERC Docket No. ER97-4143, Change in Status Filing for Market Based Rates for the American Electric Power Company, et al, Affidavit of Julie M. Carey.
March 23, 2010	FERC Docket No. ER10-727-001, Request for Market Based Rate Authority for AEP Retail Energy Partners LLC, Affidavit of Julie M. Carey
March 8, 2010	FERC Docket No. ER96-1551-__ and ER01-615-__ and ER09-74-__, Triennial Update for Market Based Rate Authority for Public Service Company of New Mexico, Affidavit of Julie M. Carey
December 11, 2008	On behalf of COALSALES II, L.L.C., in the matter of Gulf Power Company v COALSALES II, L.L.C. Docket no. 3:06 CV 270/MCR/MD, before the US District Court for the Northern District of Florida, Pensacola Division, Expert Report of Julie M. Carey (with Cliff Hamal).
August 19, 2008	On behalf of COALSALES II, L.L.C., in the matter of Gulf Power Company v COALSALES II, L.L.C. Docket no. 3:06 CV 270/MCR/MD, before the US District Court for the Northern District of Florida, Pensacola Division, Expert Report of Julie M. Carey (with Cliff Hamal)
May 25, 2007	FERC Docket Nos. ER96-2495-__, ER97-4143-__, ER97-1238-__, ER98-2075-__ and ER98-542-__, Change in Status Filing for American Electric Power For Market-Based Rate Authority, Affidavit of Julie M. Carey
April 17, 2006	FERC Docket No. Docket EC06-113-000, Application for Asset Transfer of Contra Costa #8 for Pacific Gas and Electric Company, Mirant Delta, LLC and Mirant Special Procurement, Inc., Affidavit of Julie A. Murphy.

January 12, 2006	FERC Docket No. ER96-1551-__ and ER01-615-__, Change in Status Filing for Public Service Company of New Mexico For Market-Based Rate Authority, Affidavit of Julie A. Murphy
July 21, 2005	FERC Docket No. ER05-1244-000 and ER05-1244-001, Application by Societe Generale Energie (USA) Corp. for Market-Based Rate Authority, Affidavit of Julie A. Murphy
July 15, 2005	FERC Docket No. ER96-1551-006 and ER01-615-003, Compliance Filing for Public Service Company of New Mexico For Market-Based Rate Authority, Affidavit of Julie Murphy.
April 21, 2005	Testimony of Julie Murphy on behalf of Onvoy, Inc., Onvoy, Inc. v. Allele, Inc. f/k/a Minnesota Power, Inc. d/b/a Minnesota Power and Light Company and, Enventis Telecom, Inc., Sixth Judicial District Court File No. 69-C9-03-601595, St. Louis County, Minnesota
April 4, 2005	STB Docket No. 42071, Otter Tail Power Company v. BNSF Railway Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group of the Response Testimony of Burlington Northern Santa Fe Railway Company
March 1, 2005	STB Docket No. 42071, Otter Tail Power Company v. BNSF Railway Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Supplemental Evidence of Burlington Northern Santa Fe Railway Company.
December 5, 2004	Expert Report Julie A. Murphy (with John Klick) on behalf of Onvoy, Inc., Onvoy, Inc. v. Allele, Inc. f/k/a Minnesota Power, Inc. d/b/a Minnesota Power and Light Company and, Enventis Telecom, Inc., Sixth Judicial District Court File No. 69-C9-03-601595, St. Louis County, Minnesota
September 9, 2004	STB Docket No. 41191 (Sub-No. 1), AEP Texas North Company v. Burlington Northern and Santa Fe Railway Company, Verified Statement of Julie A. Murphy
May 24, 2004	STB Docket No. 41191 (Sub-No. 1), AEP Texas North Company v. Burlington Northern and Santa Fe Railway Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Reply Evidence and Argument of Burlington Northern Santa Fe Railway Company
May 10, 2004	MI PSC Case No. U-13531, In the Matter of the Commission's Own Motion to Review the Costs of Telecommunication Services Provided by SBC Michigan, Final Reply Declaration of Julie A. Murphy (with Michael Baranowski).
April 18, 2004	STB Docket No. 41185, Arizona Public Service and PacifiCorp v. Burlington Northern Santa Fe Railway Company, Verified Statement of Julie Murphy
March 22, 2004	STB Docket No. 42071, Otter Tail Power Company v. Burlington Northern and Santa Fe Railway Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Supplemental Reply Evidence and Argument of Burlington Northern Santa Fe Railway Company.

February 19, 2004

Texas PUC SOAH Docket. No.473-04-0001, PUC Project No. 27957, Application of CenturyTel of San Marcos, Inc for Approval of a Plan for Disaggregation of State and Federal Universal Service Support, Testimony of Julie Murphy on Behalf of Grande Communications Networks, Inc

January 26, 2004

STB Docket No 42058. Arizona Electric Power Cooperative Inc. v. the Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Reply Evidence and Argument of Burlington Northern Santa Fe Railway Co.

January 20, 2004

MI PSC Case No. U-13531, In the Matter of the Commission's Own Motion to Review the Costs of Telecommunication Services Provided by SBC Michigan, Reply Declaration of Julie A. Murphy (with Michael Baranowski).

January 12, 2004

STB Docket No. 42070, Duke Energy v. CSX Transportation, Inc., Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Response to Supplemental Testimony of CSX Transportation, Inc.

January 5, 2004

STB Docket No 42070, Duke Energy v CSX Transportation, Inc , Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Supplemental Testimony of CSX Transportation, Inc.

December 29, 2003

Texas PUC SOAH Docket. No.473-04-0001, PUC Project No. 27957, Application of CenturyTel of San Marcos, Inc for Approval of a Plan for Disaggregation of State and Federal Universal Service Support, Direct Testimony of Julie Murphy on Behalf of Grande Communications Networks, Inc

October 8, 2003

STB Docket No. 42071, Otter Tail Power Co v Burlington Northern Santa Fe Railway Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group A of Reply Evidence and Argument of Burlington Northern Santa Fe Railway Co.

April 18, 2003

STB Docket No. 42058, Arizona Electric Power Coop, Inc. v. Burlington Northern Santa Fe Railway Co and Union Pacific Railroad, In Support of UI's Petition to Require Submission of New Opening Evidence, Or, Alternatively, To Dismiss, Verified Statement of Julie Murphy (with John Klick).

April 4, 2003

FCC WCB Docket No 03-18 In the Matter of Alascom, Inc Request for Waiver of Commission Rule And Orders Requiring Annual Tariff Revision, Alascom, Inc Petition for Waiver, Declaration of John Klick and Julie Murphy, Supplement to Waiver Request and Response to FOIA Request.

April 4, 2003

STB Docket No. 42057, Xcel v Burlington Northern Santa Fe Railway Co , Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Reply Evidence and Argument of Burlington Northern Santa Fe Railway Co

March 13, 2003

FCC WCB Docket No 03-18 In the Matter of Alascom, Inc Request for Waiver of Commission Rule And Orders Requiring Annual Tariff Revision, Alascom, Inc Petition for Waiver, Declaration of Julie Murphy (with John Klick), Alascom's Opposition to General Communication, Inc. FOIA, Control No 2003-208

March 5, 2003	FCC WCB Docket No.03-18 In the Matter of Alascom, Inc Request for Waiver of Commission Rule And Orders Requiring Annual Tariff Revision, Alascom, Inc Petition for Waiver, Reply Declaration of Julie Carey (with John Klick)
February 7, 2003	CA PUC Application No. 01-02-024. Joint Application of AT&T Communications of California, Inc (U 5002 C) and WorldCom, Inc. for the Commission to Reexamine the Recurring Costs and Prices of Unbundled Switching, Loop, Transport and Other Network Elements in Its First Annual Review of Unbundled Network Element Cost Pursuant to Ordering Parag. 11 of D.99-11-050. Reply Declaration of Julie Carey (with Robert A Mercer)
January 7, 2003	FCC WCB Docket No 03-18 In the Matter of Alascom, Inc. Request for Waiver of Commission Rule And Orders Requiring Annual Tariff Revision, Alascom, Inc. Petition for Waiver, Declaration of Julie Carey (with John Klick)
October 11, 2002	STB Docket No 42072, Carolina Power & Light Co v Norfolk Southern Railway Co., Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Reply Evidence and Argument of Norfolk Southern Railway Co
September 27, 2002	STB Docket No. 42069, Duke Energy Corporation v Norfolk Southern Railway Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Reply Evidence and Argument of Norfolk Southern Railway Co.
September 20, 2002	STB Docket No 42070, Duke Energy Corporation v. CSX Transportation, Inc , Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Reply Evidence and Argument of CSX Transportation, Inc

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Professional History

- Senior Advisor, Navigant Consulting - Present
- Vice President, Charles River Associates
- Managing Director, Putnam, Hayes & Bartlett
- Director, Coal and Utility Policy, U.S. Department of Energy
- Staff Member, President Carter's White House Energy Staff
- Director, Energy Policy, U.S. Environmental Protection Agency

Education

- M.P.A. Economics and Public Policy, Princeton University
- B.S.E. Industrial Engineering, University of Michigan

Testimony

- Disclosure of Deposition/Trial Testimony, 1984-2012

Mr. Speyer is a Senior Advisor at Navigant Consulting, Inc. in the Energy Practice's Power Systems, Markets & Pricing group. He is an expert in the strategic analysis of energy and environmental issues, particularly those affecting the coal, gas, electric utility, and independent power industries. Mr. Speyer served on President Carter's White House Energy Staff, and has held the positions of Director of Coal and Utility Policy at the U.S. Department of Energy, and Director of Energy Policy at the U.S. Environmental Protection Agency. He has consulted for 30 years for a wide range of clients, including financial institutions, coal companies, electric and gas utilities, independent power companies and other Fortune 500 companies on mergers and acquisitions, marketing and valuation studies, fuel procurement studies, compliance with environmental regulations (including climate change regulations) and contract litigation. For over two decades, he has been involved in evaluating the economic and financial impacts of the Clean Air Act on the U.S. coal and electric utility industries. Mr. Speyer currently advises electric utilities and independent power companies on strategic planning, mergers and acquisitions, restructuring under competition, fuel procurement, valuation of gas and coal-fired power projects, and compliance with environmental regulations. He has assisted law firms with numerous litigation matters and has testified before the U.S. Congress, state public utility commissions, arbitration panels, and federal and state courts.

Professional Experience

Coal Issues

Mr. Speyer has been an important contributor to numerous projects involving detailed examination of coal supply and demand. This work has included assessment of acquisition and investment opportunities, marketing studies, fuel procurement studies, contract litigation, and analyses of the economic and financial impacts of energy and environmental regulations.

- » *For an unsecured creditors committee*, calculated the damages at Central Appalachian coal mines due to the plaintiffs' misconduct

- » *For both coal companies and utilities, has calculated damages related to coal contract disputes*
- » *Advised Triton Coal on antitrust issues associated with their divestiture of the Buckskin and North Rochelle coal mines located in the Powder River Basin, identified substitute products including coal from alternative producing basins and identified the market for Powder River Basin coal based on transportation access and costs as well as coal quality considerations.*
- » *For an electric utility involved in a coal contract dispute, calculated the market price for various quality coals from the Powder River Basin of Montana and Wyoming and investigated issues related to the sodium content of the coal*
- » *For a coal company involved in litigation against the IRS concerning the tax treatment of the sale of coal mine, analyzed the domestic coal markets over the past thirty years.*
- » *For coal consumers, devised procurement strategies (including negotiation and renegotiation of coal contracts), developed coal price forecasts, and estimated the sensitivity of these prices to changes in energy and environmental policies*
- » *For the Gasification Technology Council; evaluated the economies of coal gasification with and without carbon capture and sequestration*
- » *For a number of coal producers; estimated coal prices for low- and high-sulfur coal and assessed the market potential for specific coal properties*
- » *For a company with a clean coal technology that upgraded low quality coal, estimated the anticipated demand for processed coal under alternative environmental regulations.*
- » *For a client analyzing coal export markets; examined steam and metallurgical coal demand in the major consuming countries.*

Electric Utilities

Mr. Speyer's electric utility work spans all the inter-related facets of strategic planning, electric utility fuel price forecasting, supply planning, and environmental compliance

- » *For a number of electric utilities; calculated damages related to alleged breach of coal contracts.*
- » *For a Midwestern utility; calculated the damages due to the Department of Energy's failure to dispose of the utility's spent nuclear fuel*
- » *For a Midwestern utility; calculated the damages at two coal-fired power plants due to having to burn coal from the Powder River Basin with sodium content higher than specified in the coal contracts*

- » *For an unregulated subsidiary of an electric utility;* calculated the damages related to the improper calculation of the quantity of electricity that was required to be supplied under a long-term PPA with a large generation and transmission cooperative
- » *For a number of electric utilities;* testified in state deregulation proceedings in Pennsylvania, Maryland, West Virginia, and Ohio on the projected prices of fossil fuels and the cost of complying with current and future environmental regulations, including climate change regulations
- » *For a Midwestern utility,* calculated the value of the utility's fossil fuel power plants. This valuation was used as the basis for restating the value of these plants on the company's balance sheet
- » *For several utilities,* calculated the value of the utilities' nuclear power plants
- » *For a Midwestern utility;* helped the company negotiate the sale of its nuclear power plant.
- » *Advised senior management of several electric utilities on alternative strategies;* including mergers and acquisitions, to adapt to the ongoing restructuring of the U S and foreign electric utility industries
- » *Assisted senior utility management,* developing bids for the purchase of coal and gas-fired power plants
- » *Evaluated the economics of life-extending coal-fired boilers versus alternative strategies,* including converting to natural gas
- » *For an electric utility;* analyzed the impact of acid rain legislation on the economics of nuclear versus coal-fired power plants.
- » *For Bonneville Power Administration,* assessed the potential stranded cost due to restructuring of the electric utility industry.
- » *For a nuclear industry liability case,* prepared an expert report and served as the expert on damages.

Independent Power Markets

Mr. Speyer's work involving independent power markets includes strategic and economic advice to non-utility generation firms. He has been retained by both defendants and plaintiffs to provide expert testimony on economic damages and other issues in litigation cases related to the independent power generation industry. Mr. Speyer's also has assisted law firms in litigation concerning merchant power plants that were already constructed and in operation, as well as, power plants that never were completed.

- » *On behalf of a wind developer*; calculated the damages from an alleged breach of contract with a manufacturer of wind turbines
- » *For Independent power producers*, involved in an arbitration proceeding regarding the damages due to the termination of a long-term tolling contract, which involved the valuation of a natural gas-fired combined-cycle power plant. Calculated the damages associated with the improper administration of a long-term PPA with an electric utility company.
- » *In an arbitration regarding damages for alleged breach of contract between Bonneville Power Administration and Tenaska Washington Partners, Inc.*; provided expert testimony concerning key aspects of the damages claim. Analysis included forecasts of electricity and gas prices, valuation of a potential renegotiated gas contract, and valuation of the gas-fired plant after expiration of the power purchase agreement.
- » *On behalf of the Equity Committee of a publicly traded company*; estimated the value of the company's assets, which included coal mines, coal terminals and IPI projects.
- » *On behalf of two independent generators in an antitrust suit against a large electric utility*, provided an expert report on the manner in which the utility calculated its avoided costs, mitigation issues and the calculation of damages
- » *For a potential cogeneration project host and steam user in a breach of contract suit against the project developer*, presented testimony as a damages expert during trial
- » *For an international independent power company*; analyzed the financial feasibility of constructing and operating coal and wind power plants in the United States and several other countries, including India

Environmental Issues

- » ***For a range of clients, Mr. Speyer has analyzed the economic and regulatory impacts of implementing the Clean Air Act and its Amendments, and has studied the effects of proposed climate change policies***
- » ***For a number of clients, evaluated the financial and economic impacts of changes in environmental regulations (including alternative climate change regulations) on the electric utility and coal industries***
- » ***For a number of electric utilities and other industrial companies, developed least cost strategies to comply with the Clean Air Act's provisions, including development of clean coal technologies and the purchase and/or sale of emission allowances for sulfur dioxide and nitrogen oxides.***
- » ***For an association of industrial companies and trade associations, analyzed the economic and environmental effects of alternative climate change policies***

Deposition and Trial Testimony

Date	Case	Venue
2011-2012	Official Committee of Unsecured Creditors of Appalachian Fuels, LLC, ET AL	Case No. 09-10343 U.S. Bankruptcy Court Eastern District of Kentucky
2006/2011	Consumers Energy vs United States of America	Case No. 02-1894-C United States Court of Federal Claims
2009	Environmental Energy Services, Inc vs Coalogix Inc.	Case No. 3:08-CV-01237 (RNC) District Court of Connecticut
2006/2007	PacifiCorp Holdings, Inc., PacifiCorp and Subsidiaries vs. United States of America	United States District Court, District of Oregon
2005/2006	Constellation Energy Commodities Group, Inc vs Exelon Generation Company, LLC	Case No. 51-198 Y American Arbitration Association
2003/2004	Attala Generating Company vs Attala Energy Company	Case No. 16-Y198-0028-03 American Arbitration Association
2002	I.G.&E v. Oglethorpe Power Corporation	Arbitration Panel
2002	Lodestar Energy Inv. V. Cedar Bay Generating Company	U.S. Bankruptcy Court for the Eastern District of Kentucky, Lexington Division (Jointly Admin: Case No. 01-50969)
2001	Intermountain Power Agency in Arbitration with Union Pacific Railroad Company	Arbitration Panel
2001	Skokomish Indian Tribe v. City of Tacoma	Case No. C-99-5606 FDB U.S. District Court, Western District of Washington at Tacoma
2000/2001	Logan Generating Company, L P v The Atlantic City Electric Company/Connectiv Energy	Case No. 18-Y-199-00158-99 American Arbitration Association
2000/2001	Black & Veatch Construction, Inc v Cogen South L.L.C., et al	Case No. 98-CP-10-3363 District Court of the State of South Carolina C.A
2000	Illinois Power Company v Wegman Electric Co., Power Maintenance and Constructors, L.L.C, and Burns & McDonnell Engineering, Inc	Case No. 98 L 280 Circuit Court — Third Judicial Circuit, Madison County, Illinois
1999/2000	Application of the Cincinnati Gas & Electric Company for the approval of its electric transition plan	Case No. 99-1658-EL-ETP Public Utilities Commission of Ohio
1999/2000	Application of the Dayton Power & Light Company for the approval of their electric transition plan	Case No. 99-EL-1687-ETP Public Utilities Commission of Ohio

1999	Application of the Monongahela Power Company and the Potomac Edison company for the approval of their electric transition plan	Case No. 98-0452-E-GI West Virginia Public Service Commission
1998	In Re: Westmoreland Coal Company, EIN 23-1128670, et. al, Debtor.	United States Bankruptcy Court-District of Colorado, Chapter 11 Joint Case No. 96-26092-MSK
1998	Application of the Potomac Edison Company for the approval of its electric transition plan	Public Service Commission of Maryland, Case No. 8738 (CHECK ALSO Case No. 8797)
1998	Union Electric Company v. Consolidated Coal Company	Case No. 4-96CV01881-JCII District Court of the State of Missouri
1997/1998	Application of the West Penn Power Company for the approval of its electric transition plan.	Case No. R-00973981 Pennsylvania Public Utility Commission
1997/1998	Tenaska Washington Partners II, L.P. v. The Bonneville Power Administration	Case No. 77-198-0224-95 American Arbitration Associate
1997	West Penn Power Company	Pennsylvania Public Utility Commission (Docket #R-00973981)
1995	Westinghouse Electric Corp (Westinghouse) v. Commonwealth Edison Company (ComEd)	
1994	Mid-Georgia Cogen L.P. v. Georgia Power Company	Georgia Public Service Commission (Docket No. 4900-U)
1994	Minnesota Power v. Peabody Coal Company	Case No. 56-198-00199-90 American Arbitration Association, Minneapolis MN
1994	On behalf of Monongahela Power Company	Case No. 94-809-EL-ECP Public Utility Commission of Ohio
1992	On behalf of PSI Energy, Inc.	Case No. 39346 Indiana Utility Regulatory Commission
1990	AGA Corporation v. Indeck Power Equipment Co	Michigan Circuit Court for the County of Iron (File No. I-88-3985-CK)
1989	Sprig v. Powell Duffryn Terminals, Inc. (Louisiana Pacific)	
1986	Arizona Public Service Company (Re. Palo Verde Unit #2)	
1986	State of New York Dept of Environmental Conservation	
1984-1985	Philadelphia Electric Company (Re. Limerick Unit No. 2, Nuclear Generating Station Investigation)	Pennsylvania Public Utility Commission (Docket No. I-840381)